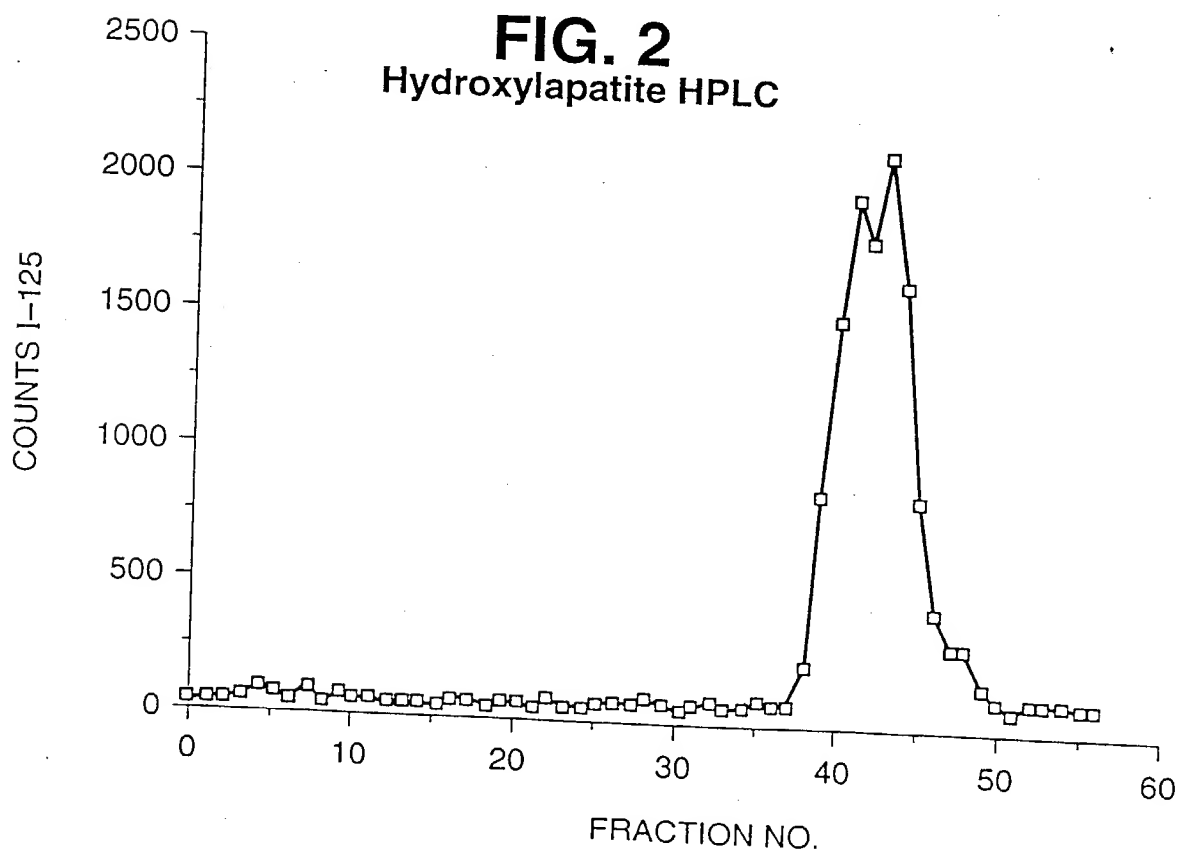
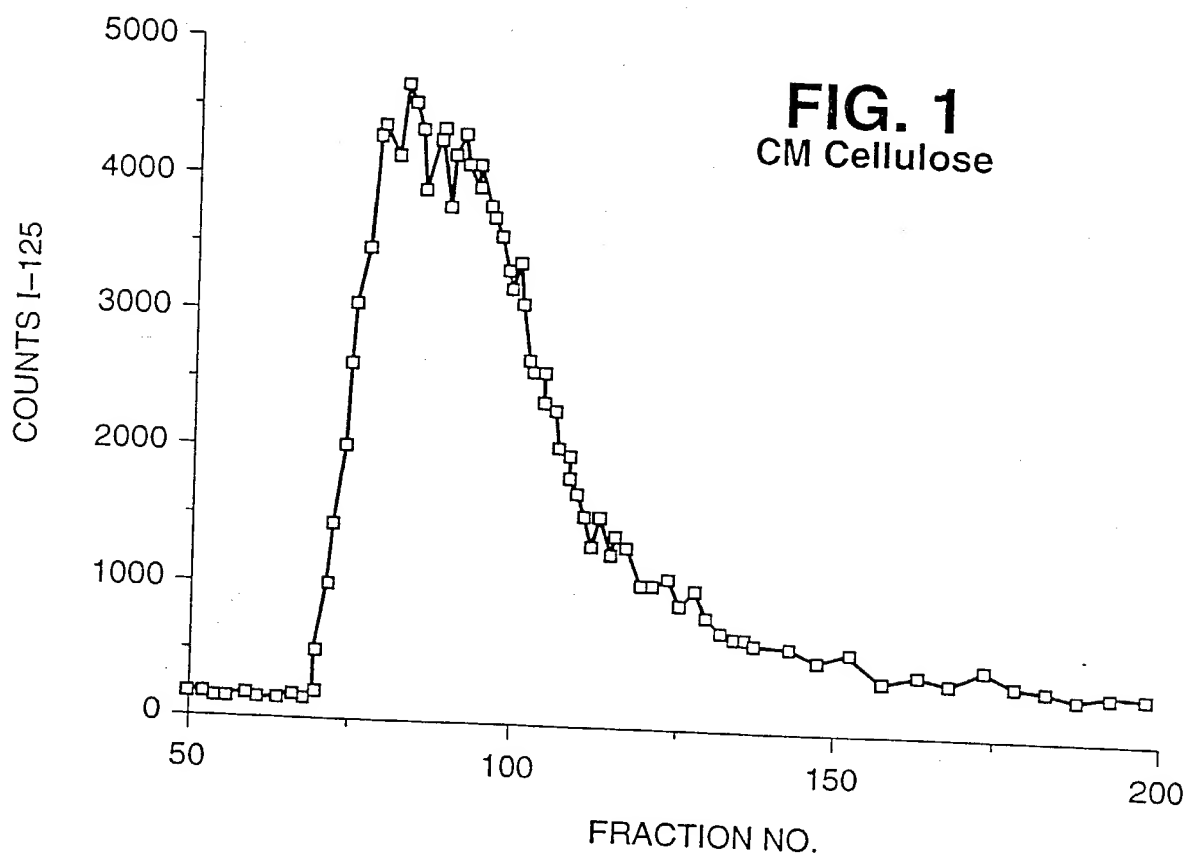
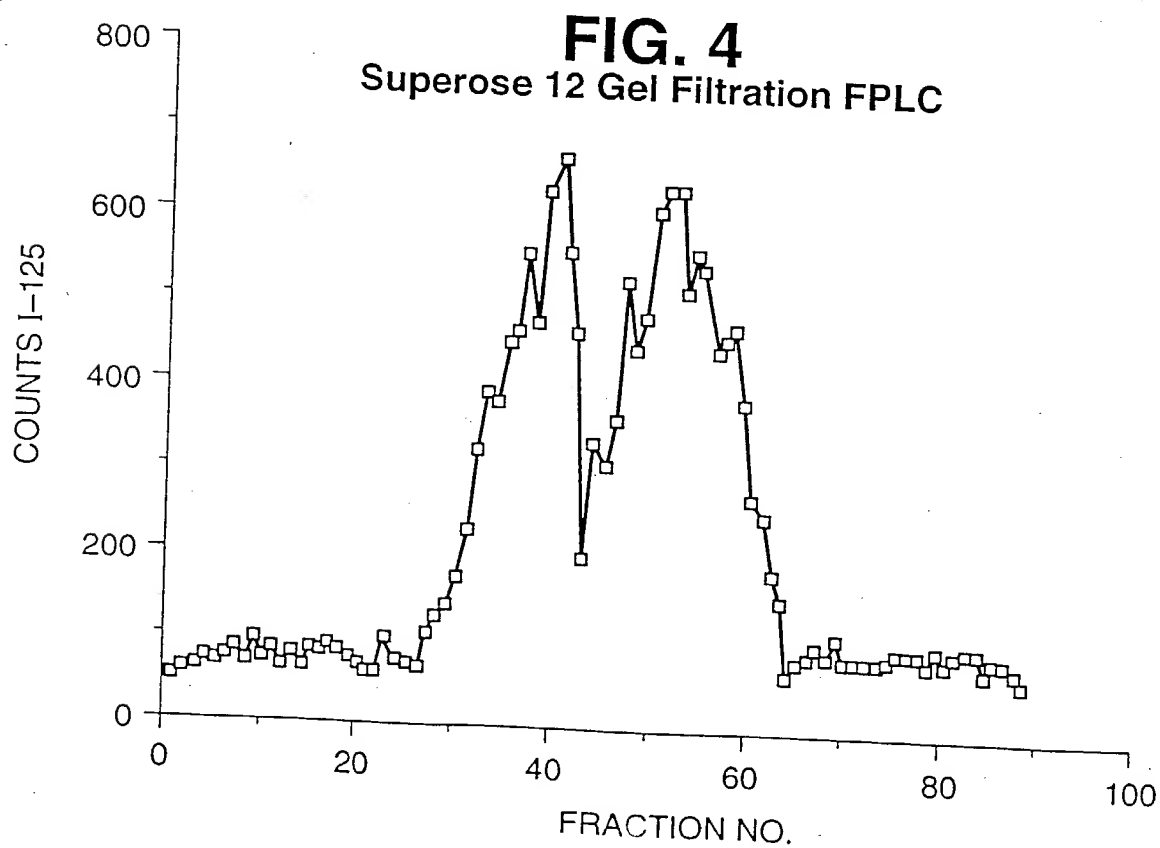
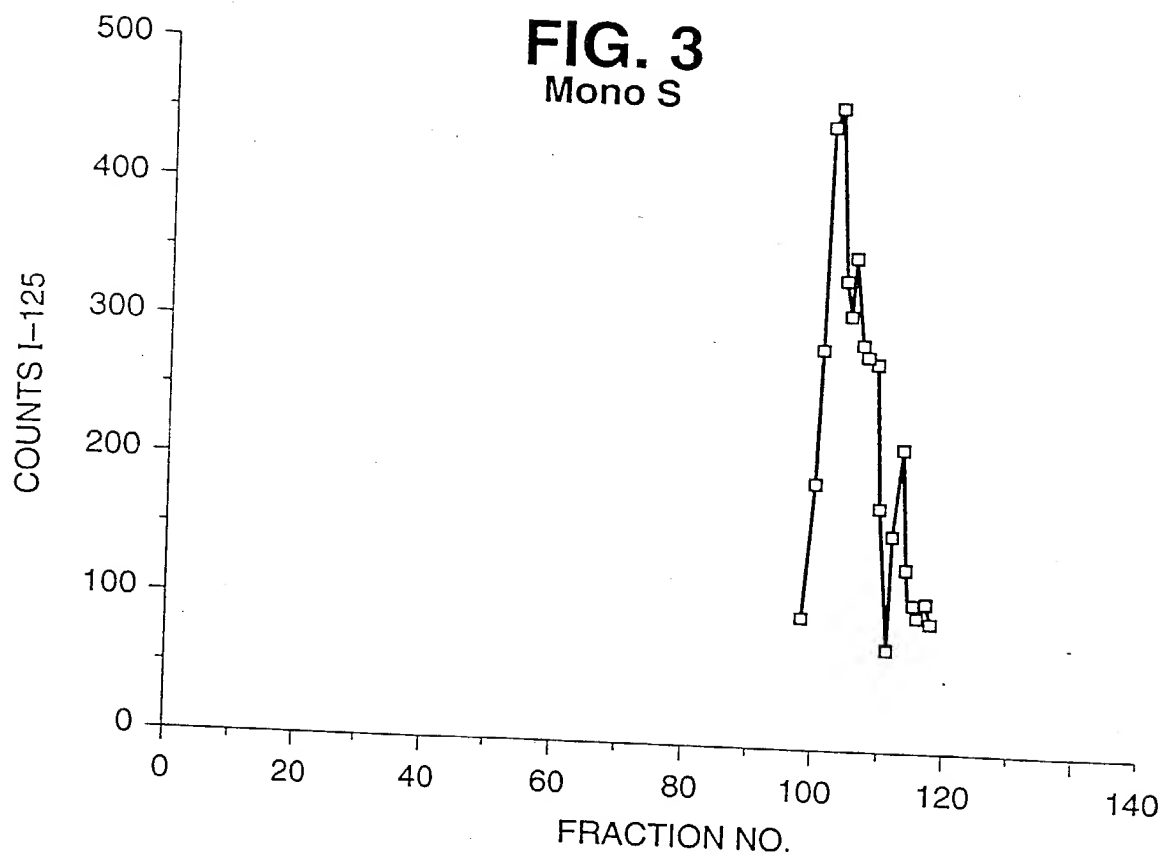


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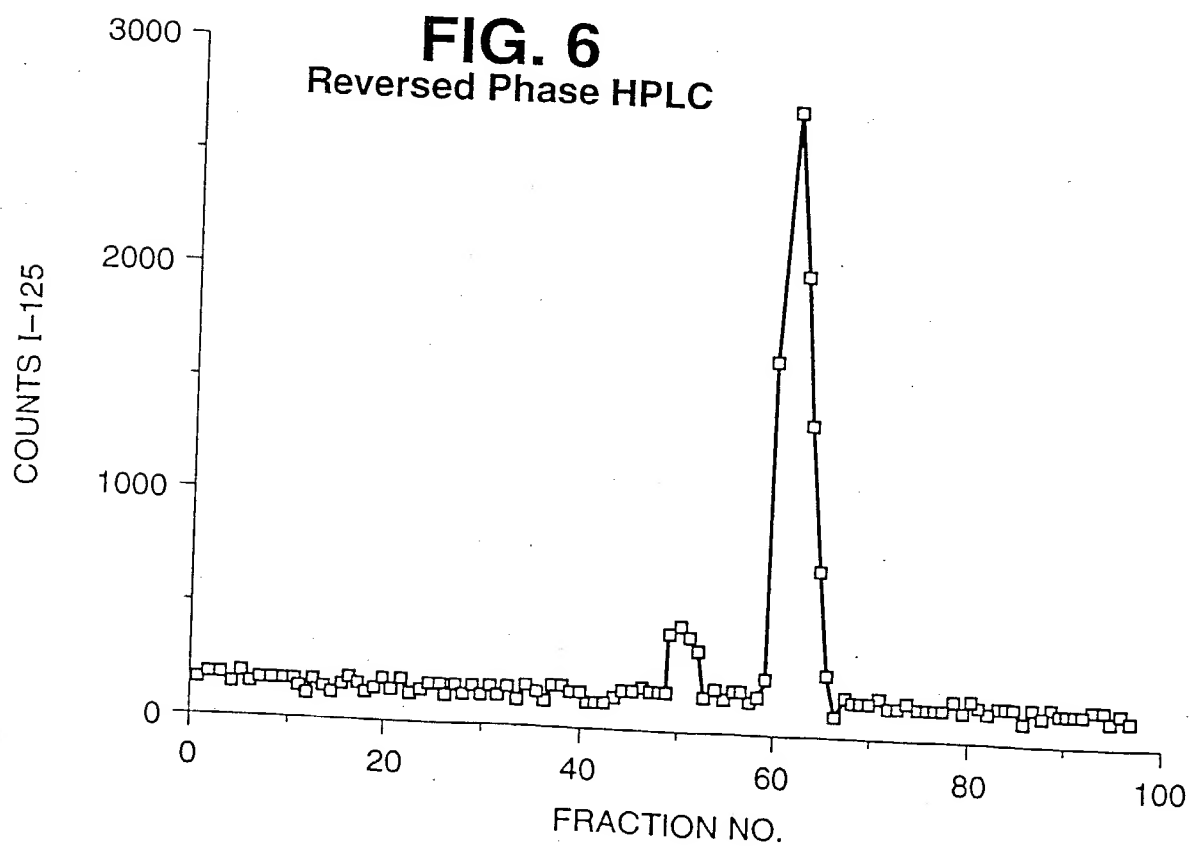
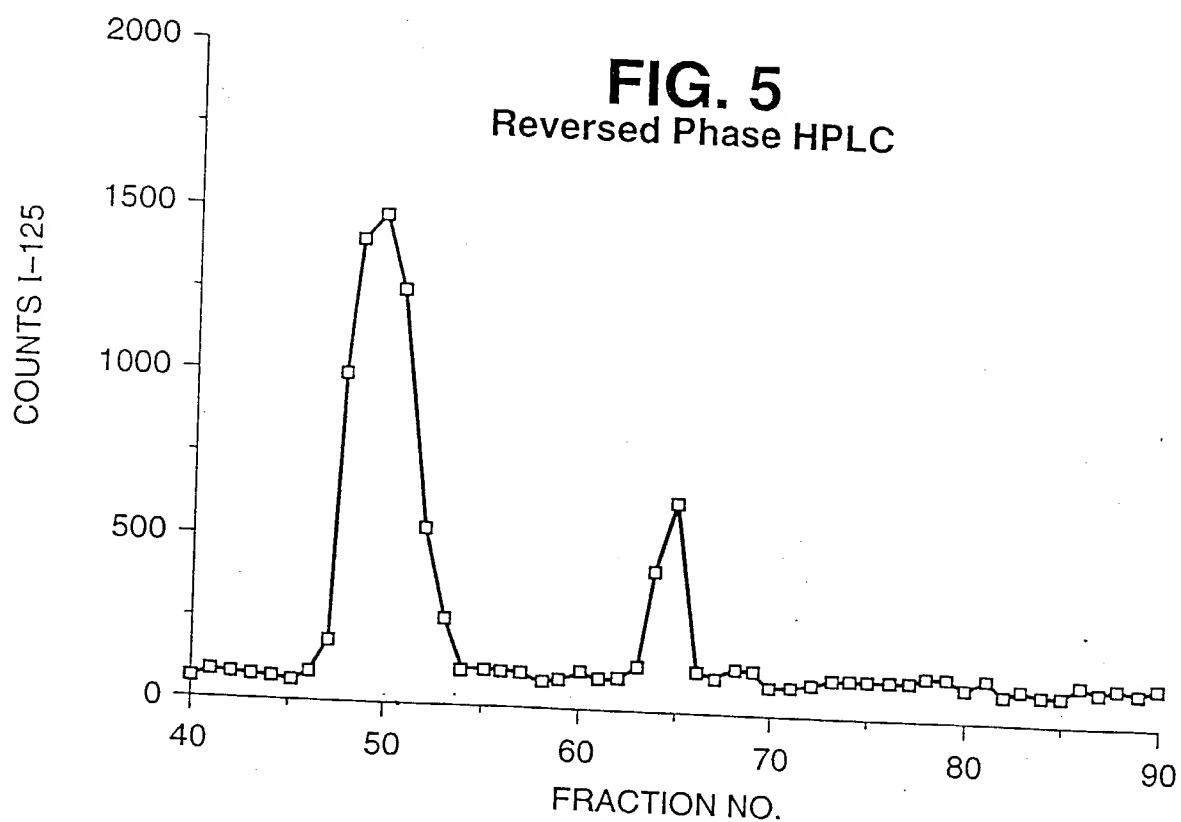


FIG. 7
Factor-I Dose Response
in Serum & Plasma

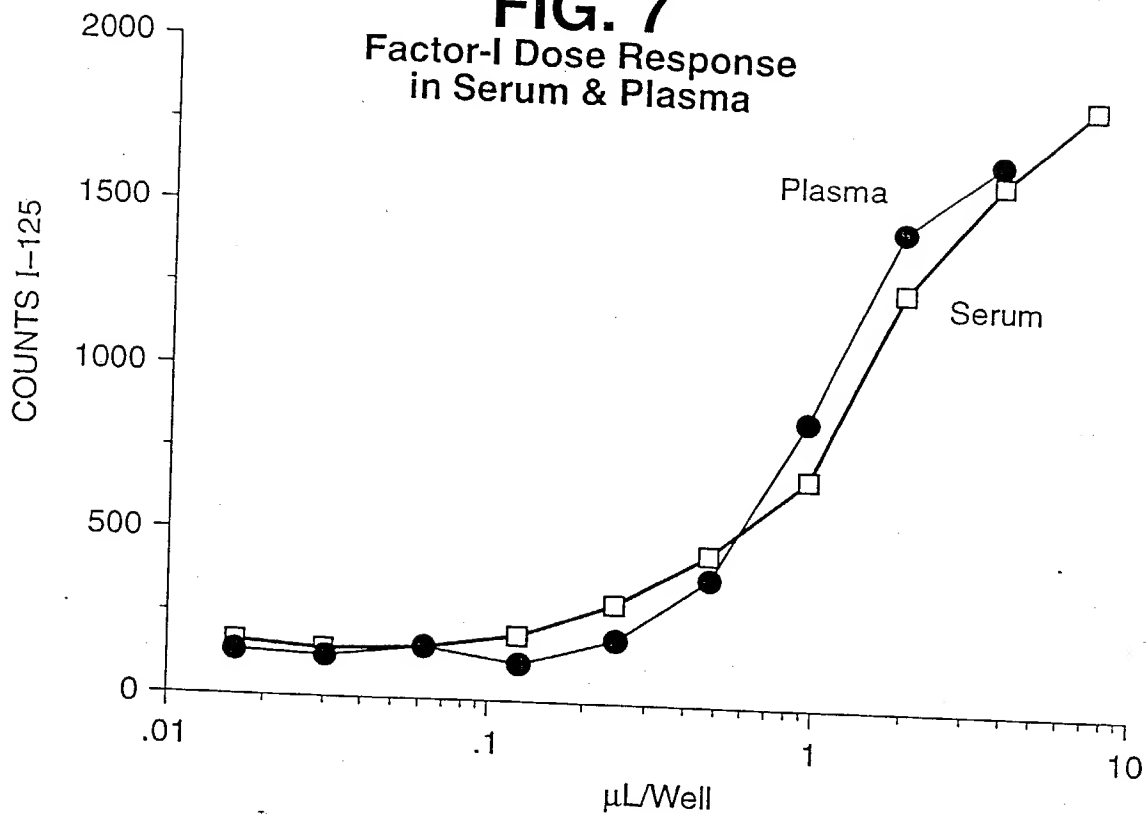


FIG. 8
Factor-II Dose Response
in Serum or Plasma

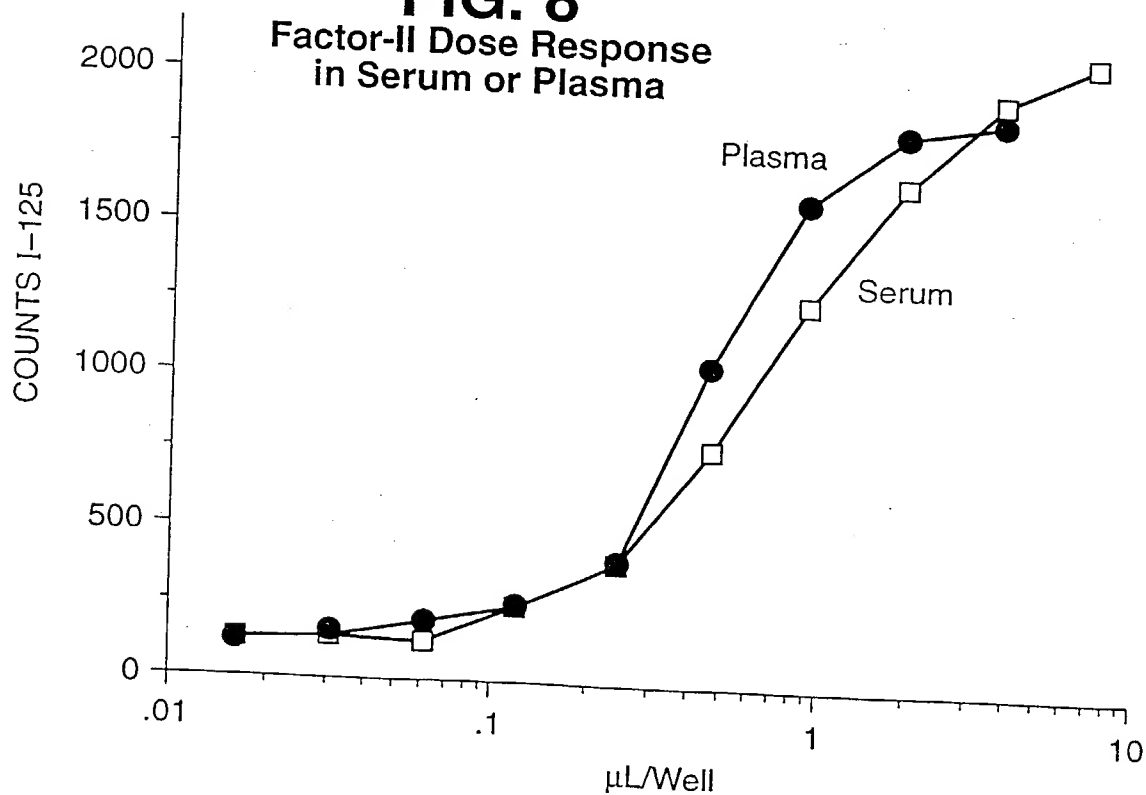


FIG. 9

GGF-I 01	N-terminus F K G D A H T E		(SEQ ID NO: 1)	
GGF-I 02	Trypsin peptides K/R A S L A D E Y E Y M X K *		(SEQ ID NO: 2)	HMG-1
GGF-I 03	K/R T E T S S G L X L K *		(SEQ ID NO: 3)	HMG-1?
GGF-I 04	K/R K L G E M W A E		(SEQ ID NO: 4)	HMG-2
GGF-I 05	K/R L G E K R A		(SEQ ID NO: 5)	
GGF-I 06	K/R I K S E H A G L S I G D T A K *		(SEQ ID NO: 6)	
GGF-I 07	K/R A S L A D E Y E Y M R K *		(SEQ ID NO: 7)	HMG-1
GGF-I 08	K/R I K G E H P G L S I G D V A K *		(SEQ ID NO: 8)	HMG-2
GGF-I 09	K/R M S E Y A F F V Q T X R *		(SEQ ID NO: 9)	HMG-1
GGF-I 10	K/R S E H P G L S I G D T A K *		(SEQ ID NO: 10)	
GGF-I 11	K/R A G Y F A E X A R *		(SEQ ID NO: 11)	
GGF-I 12	K/R K L E F L X A K *		(SEQ ID NO: 12)	
GGF-I 13	K/R T E M A S E Q G A		(SEQ ID NO: 13)	
GGF-I 14	K/R A K E A L A A L K *		(SEQ ID NO: 14)	
GGF-I 15	K/R F V L Q A K *		(SEQ ID NO: 15)	
GGF-I 16	K/R L G E M W		(SEQ ID NO: 16)	HMG-1
GGF-I 17	Protease V8 peptides E T Q P D P G Q I L K K V P M V I G A Y T		(SEQ ID NO: 169)	
GGF-I 18	E Y K C L K F K W F K K A T V M		(SEQ ID NO: 17)	
GGF-I 19	E A K Y F S K X D A		(SEQ ID NO: 18)	LH-alpha
GGF-I 20	E X K F Y V P		(SEQ ID NO: 19)	
GGF-I 21	E L S F A S V R L P G C P P G V D P M V S F P V A L		(SEQ ID NO: 20)	LH-beta

FIG. 10

10A

GGF-I 01	F K G D A H T E	(SEQ ID NO: 1)
GGF-I 02	A S L A D E Y E Y M X K	(SEQ ID NO: 22)
GGF-I 03	T E T S S G L X L K	(SEQ ID NO: 23)
GGF-I 07	A S L A D E Y E Y M R K	(SEQ ID NO: 24)
GGF-I 11	A G Y F A E X A R	(SEQ ID NO: 25)
GGF-I 13	T T E M A S E Q G A	(SEQ ID NO: 26)
GGF-I 14	A K E A L A A L K	(SEQ ID NO: 27)
GGF-I 15	F V L Q A K K	(SEQ ID NO: 28)
GGF-I 17	E T Q P D P G Q I L K K V P M V I G A Y T	(SEQ ID NO: 29)
GGF-I 18	E Y K C L K F K W F K K A T V M	(SEQ ID NO: 17)

10B

GGF-I 20	E X K F Y V P	(SEQ ID NO: 19)
GGF-I 12	K L E F L X A K	(SEQ ID NO: 32)

FIG. 11

Trypsin peptides			
GGF-II 01	K/R	V H Q V W A A K *	(SEQ ID NO: 33)
GGF-II 02	K/R	Y I F F M E P E A X S S G	(SEQ ID NO: 34)
GGF-II 03	K/R	L G A W G P P A F P V X Y	(SEQ ID NO: 35)
GGF-II 04	K/R	W F V V I E G K *	(SEQ ID NO: 36)
GGF-II 05	K/R	A L A A A G Y D V E K *	(SEQ ID NO: 164)
GGF-II 06	K/R	L V L R *	(SEQ ID NO: 165)
GGF-II 07	K/R	X X Y P G Q I T S N	(SEQ ID NO: 166)
GGF-II 08	K/R	A S P V S V G S V Q E L V Q R *	(SEQ ID NO: 37)
GGF-II 09	K/R	V C L L T V A A P P T	(SEQ ID NO: 38)
GGF-II 10	K/R	D L L L X V	(SEQ ID NO: 39)
Histone H1			
Trypsin			
Lysyl Endopeptidase-C peptides			
GGF-II 11	K	V H Q V W A A K *	(SEQ ID NO: 51)
GGF-II 12	K	A S L A D S G E Y M X K*	(SEQ ID NO: 52)

FIG. 12

A

GGF-II 01	V H Q V W A A K	(SEQ ID NO: 45)
GGF-II 02	Y I F F M E P E A X S S G	(SEQ ID NO: 46)
GGF-II 03	L G A W G P P A F P V X Y	(SEQ ID NO: 47)
GGF-II 04	W F V V I E G K	(SEQ ID NO: 48)
GGF-II 08	A S P V S V G S V Q E L V Q R	(SEQ ID NO: 49)
GGF-II 09	V C L L T V A A P P T	(SEQ ID NO: 50)
GGF-II 11	K V H Q V W A A K	(SEQ ID NO: 51)
GGF-II 12	K A S L A D S G E Y M X K	(SEQ ID NO: 52)

B

Novel Factor II Peptides - others

GGF-II 10	D L L L X V	(SEQ ID NO: 53)
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FIG. 13
Comparison of BrdU-ELISA and [125 I]UdR Counting Method for
the DNA Synthesis Assay in Schwann Cell Cultures

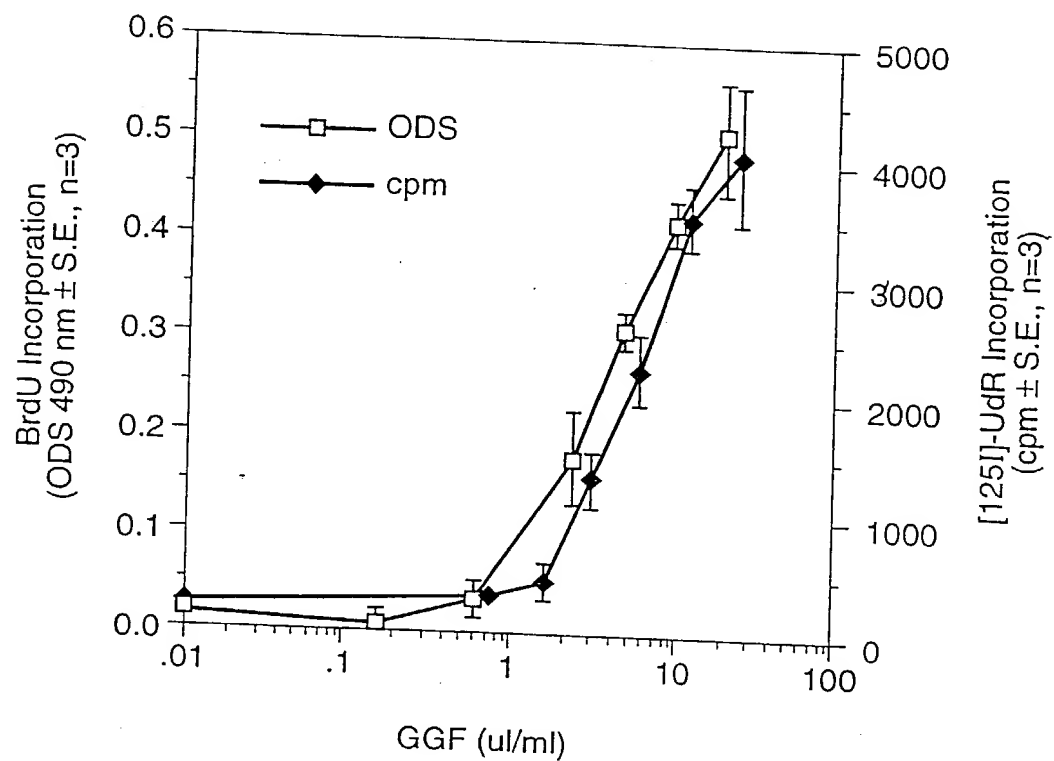
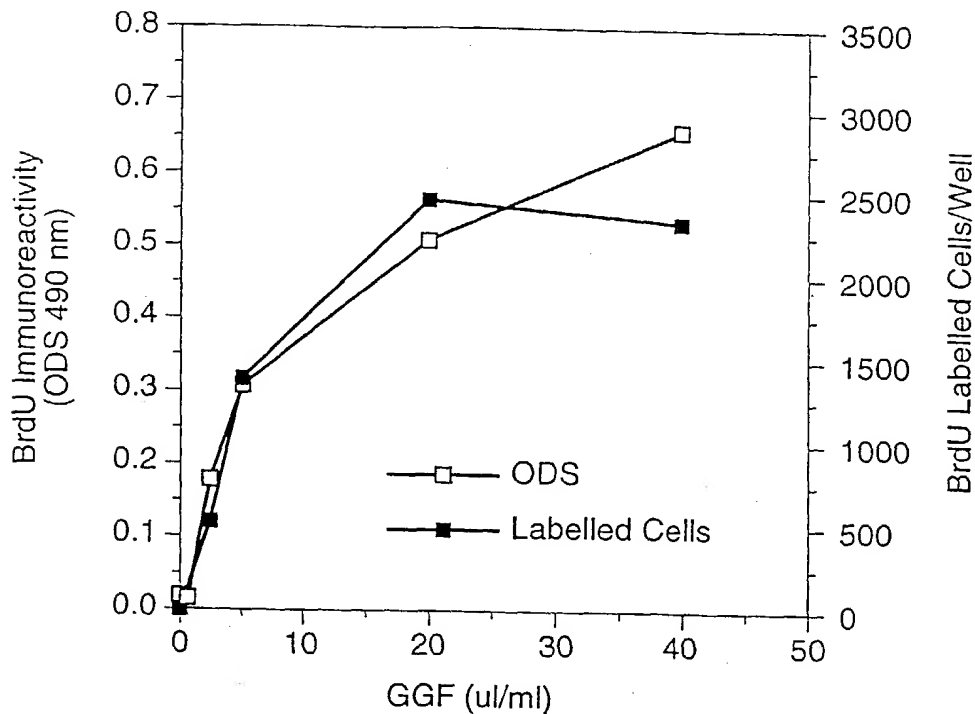


FIG. 14A

Comparison of Br-UdR Immunoreactivity
and Br-UdR Labelled Cell Number

**FIG. 14B**

Comparison of Br-UdR Immunoreactivity
and Br-UdR Labelled Cell Number

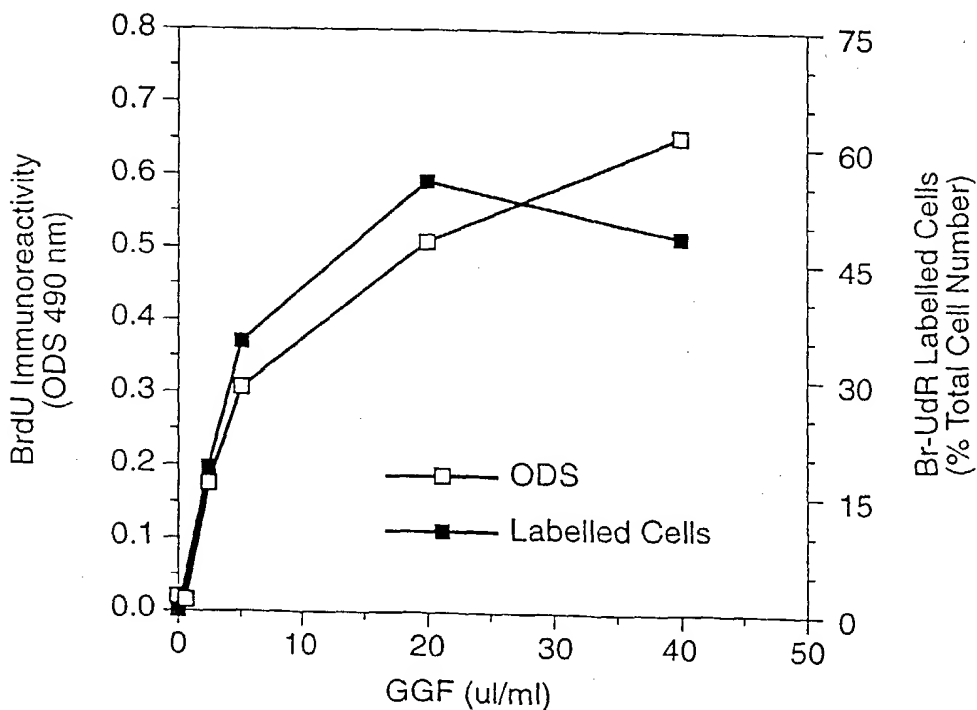


FIG. 15
Mitogenic Response of Rat Sciatic
Nerve Schwann cell to GGFs

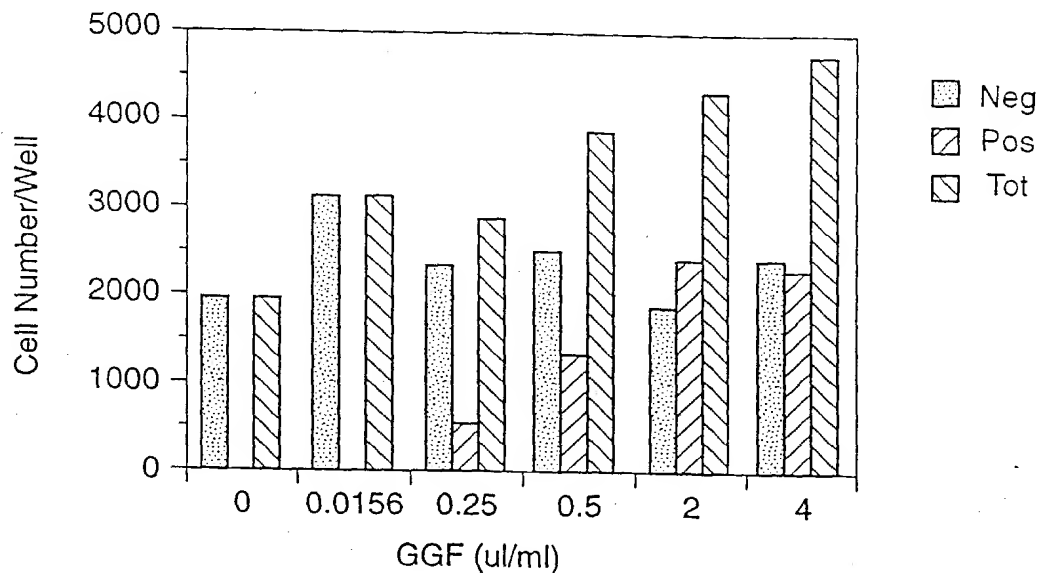
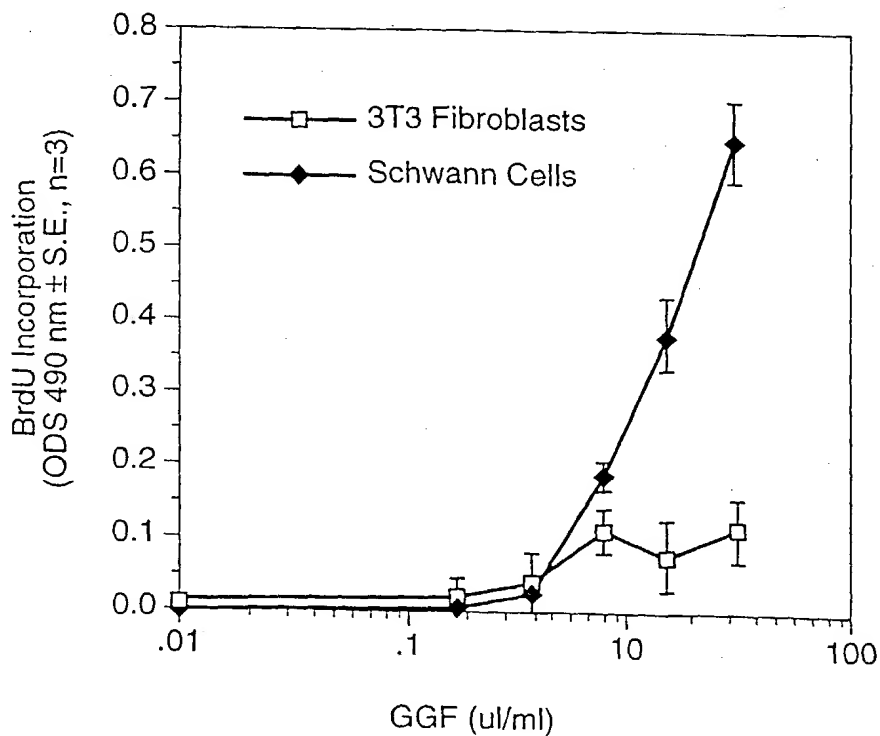


FIG. 16
DNA Synthesis in Rat Sciatic Nerve Schwann
Cells and 3T3 Fibroblasts in the presence of GGFs



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FIG. 17
Mitogenic Response of
BHK 21 C13 Cells to FCS and GGFs

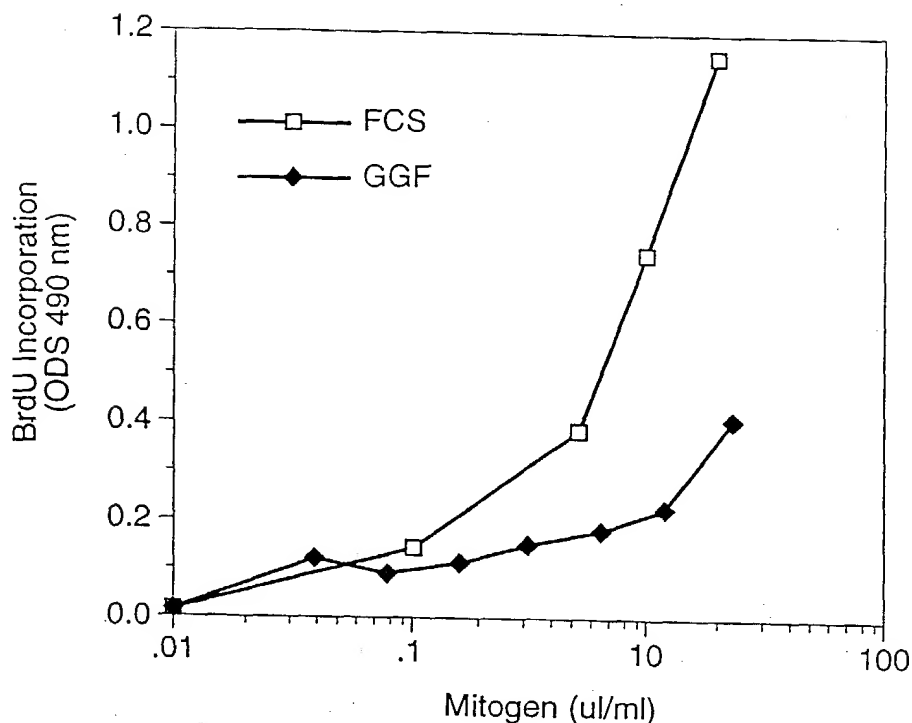


FIG. 18
Survival and Proliferation of BHK21 C13 Cell
Microcultures After 48 Hours in Presence of GGFs

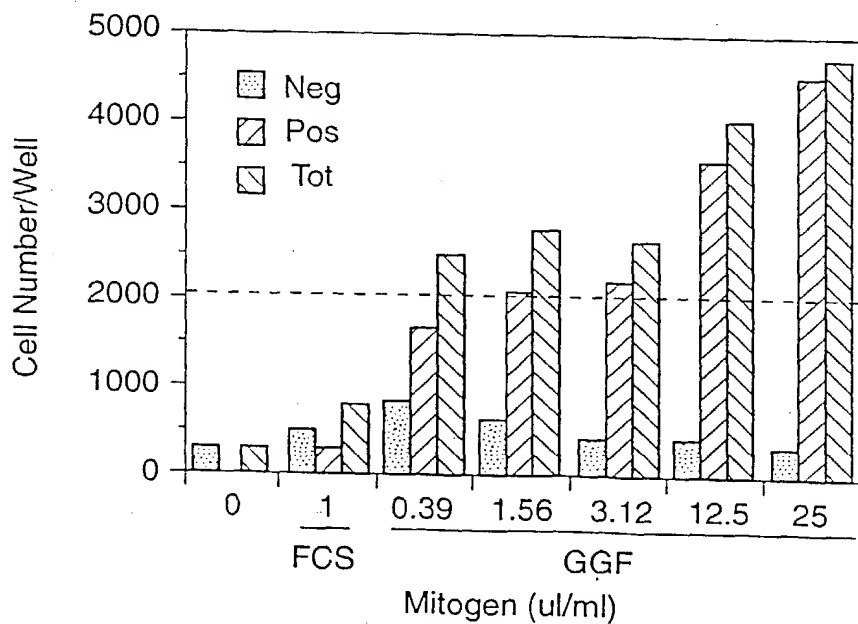


FIG. 19
Mitogenic Response
of C6 Cells to FCS

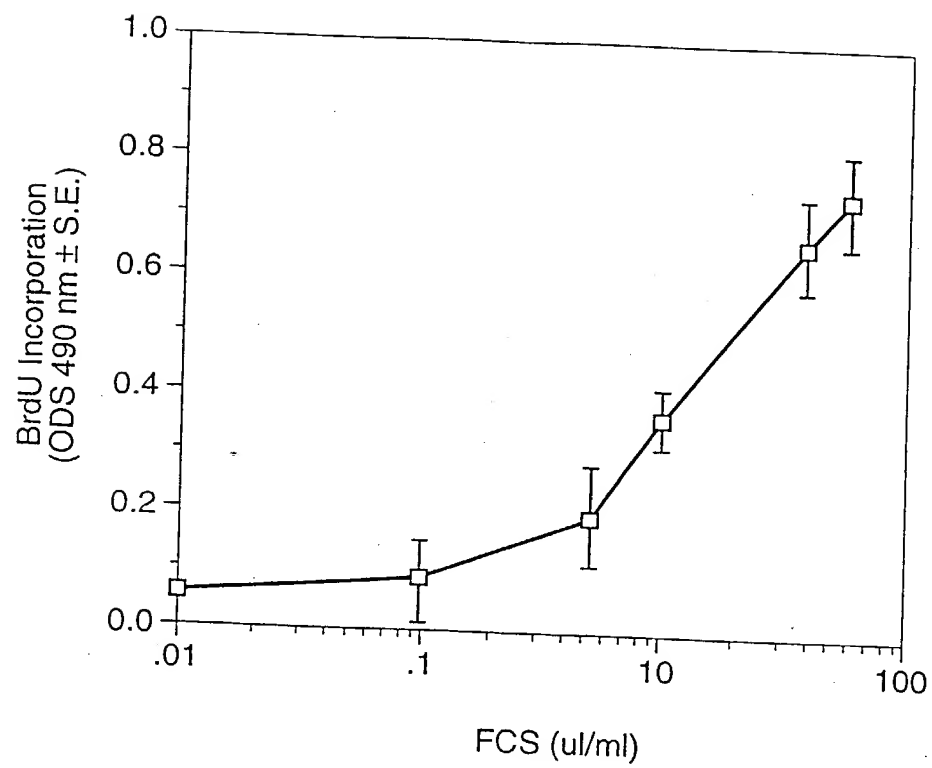


FIG. 20B
Mitogenic Response of
C6 Cells to aFGF & GGFs

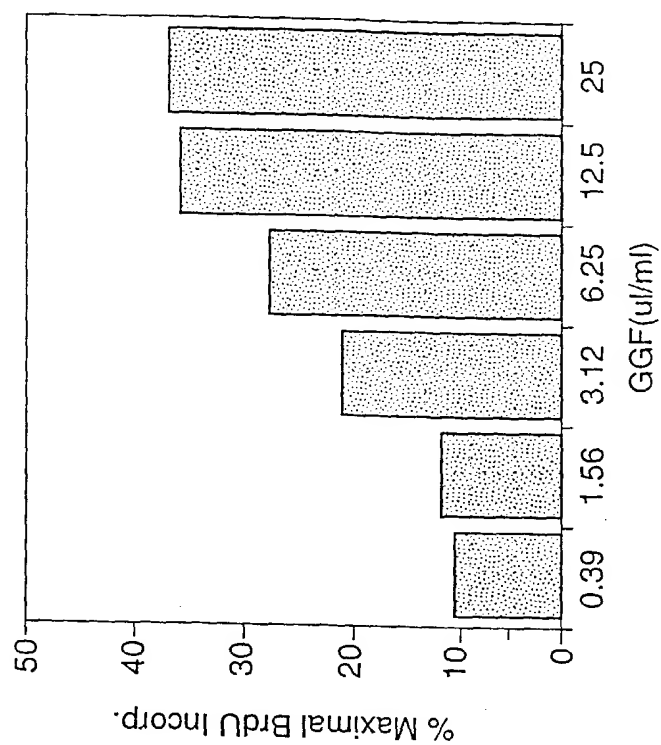


FIG. 20A
Mitogenic Response of
C6 Cells to aFGF & GGFs

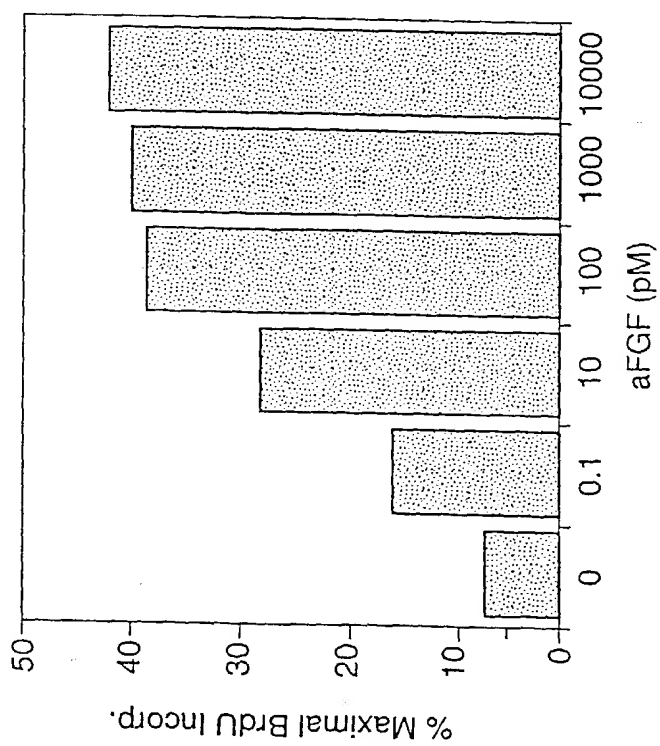


FIG. 21

Degenerate Oligonucleotide Probes for Factor I & Factor II

Oligo	Sequence	Peptide	
535	TTYAARGGNGAYGCNCAYAC!	GGFI-1	(SEQ ID NO: 54)
536	CATRTAYTCRTAYTCRTCNGC!	GGFI-2	(SEQ ID NO: 55)
537	TGYTCNGANGCCATYTCNGT!	GGFI-13	(SEQ ID NO: 56)
538	TGYTCRCTNGCCATYTCNGT!	GGFI-13	(SEQ ID NO: 57)
539	CCDATNACCATNGGNACYTT!	GGFI-17	(SEQ ID NO: 58)
540	GCNGCCCANACYTGRTGNAC!	GGFII-1	(SEQ ID NO: 59)
541	GCYTCNGGYTCCATRAARAA!	GGFII-2	(SEQ ID NO: 60)
542	CCYTCDATNACNACRAACCA!	GGFII-4	(SEQ ID NO: 61)
543	TCNGCRAARTANCCNGC!	GGFI-11	(SEQ ID NO: 62)
544	GCNGCNAGNGCYTCYTTNGC!	GGFI-14	(SEQ ID NO: 63)
545	GCNGCYAANGCYTCYTTNGC!	GGFI-14	(SEQ ID NO: 64)
546	TTYTTNGCYTGNAGNACRAA!	GGFI-15	(SEQ ID NO: 65)
551	TTYTTNGCYTGAAANACRAA!	GGFI-15	(SEQ ID NO: 66)
568	TGNACNAGYTCYTGAC!	GGFII-8	(SEQ ID NO: 67)
569	TGNACYAAYTCYTGAC!	GGFII-8	(SEQ ID NO: 68)
609	CATRTAYTCNCCNGARTCNGC!	GGFII-12	(SEQ ID NO: 69)
610	CATRTAYTCNCCRCTRTCNGC!	GGFII-12	(SEQ ID NO: 70)
649	NGARTCNGCYAANGANGCYTT!	GGFII-12	(SEQ ID NO: 71)
650	NGARTCNGCNAGNGANGCYTT!	GGFII-12	(SEQ ID NO: 72)
651	RCTRTCNGCYAANGANGCYTT!	GGFII-12	(SEQ ID NO: 73)
652	RCTRTCNGCNAGNGANGCYTT!	GGFII-12	(SEQ ID NO: 74)
653	NGARTCNGCYAARCTNGCYTT!	GGFII-12	(SEQ ID NO: 75)
654	NGARTCNGCNAGRCTNGCYTT!	GGFII-12	(SEQ ID NO: 76)
655	RCTRTCNGCYAARCTNGCYTT!	GGFII-12	(SEQ ID NO: 78)
656	RCTRCTNGCNAGRCTNGCYTT!	GGFII-12	(SEQ ID NO: 79)
659	ACNACNGARATGGCTCNGA!	GGFI-13	(SEQ ID NO: 80)
660	ACNACNGARATGGCAGYNGA!	GGFI-13	(SEQ ID NO: 81)
661	CAYCARGTNTGGGCNGCNAA!	GGFII-1	(SEQ ID NO: 82)
662	TTYGTNGTNATHGARGGNAA!	GGFII-4	(SEQ ID NO: 83)
663	AARGGNGAYGCNCAYACNGA!	GGFI-1	(SEQ ID NO: 84)
664	GARGCNYTNGCNGCNYTNAA!	GGDI-14	(SEQ ID NO: 85)
665	GTNGGNTCNGTNCARGARYT!	GGFII-8	(SEQ ID NO: 86)
666	GTNGGNAGYGTNCARGARYT!	GGFII-8	(SEQ ID NO: 87)
694	NACYTTYTTNARHATYTGNC!	GGFI-17	(SEQ ID NO: 88)

FIG. 22

Putative Bovine Factor II Gene Sequences

SEQ ID NO: 89:

TCTAA AAC TAC AGA GAC TGT ATT TTC ATG ATC ATA GTT CTG TGA AAT ATA	53
Asn Tyr Arg Asp Cys Ile Phe Met Ile Ile Val Leu Xaa Asn Ile	
CTT AAA CCG CTT TGG TCC TGA TCT TGT AGG AAG TCA GAA CTT CGC ATT	101
Leu Lys Pro Leu Trp Ser Xaa Ser Cys Arg Lys Ser Glu Leu Arg Ile	
AGC AAA GCG TCA CTG GCT GAT TCT GGA GAA TAT ATG TGC AAA GTG ATC	149
Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu Ser Met Cys Lys Val Ile	
AGC AAA CTA GGA AAT GAC AGT GCC TCT GCC AAC ATC ACC ATT GTG GAG	197
Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Arg Ile Val Glu	
TCA AAC GGT AAG AGA TGC CTA CTG CGT GCT ATT TCT CAG TCT CTA AGA	245
Ser Asn Gly Lys Arg Cys Leu Leu Arg Ala Ile Ser Gln Ser Leu Arg	
GGA GTG ATC AAG GTA TGT GGT CAC ACT TGA ATC ACG CAG GTG TGT GAA	293
Gly Val Ile Lys Val Cys Gly His Thr Xaa Ile Thr Gln Val Cys Glu	
ATC TCA TTG TGA ACA AAT AAA AAT CAT GAA AGG AAA ACT CTA TGT TTG	341
Ile Ser Cys Xaa Thr Asn Lys Asn His Glu Arg Lys Thr Leu Cys Leu	
AAA TAT CTT ATG GGT CCT CCT GTA AAG CTC TTC ACT CCA TAA GGT GAA	389
Lys Tyr Leu Met Gly Pro Pro Val Lys Leu Phe Thr Pro Xaa Gly Glu	
ATA GAC CTG AAA TAT ATA TAG ATT ATT T	417
Ile Asp Leu Lys Tyr Ile Xaa Ile Ile	

FIG. 23A

PCR Primers for Factor I & Factor II

Degenerate PCR Primers

Oligo Sequence	Peptide	(SEQ ID NO: 90)
657 CCGAATTCTGCAGGARACNCARCCNGAYCCNGG!	GGFI-17	(SEQ ID NO: 90)
658 AAGGATCCTGCAGNGTRTANGCNCCHATNACCATNGG!	GGFI-17	(SEQ ID NO: 91)
667 CCGAATTCTGCAGGCNGAYTCNGGNGARTAYATG!	GGFII-12	(SEQ ID NO: 92)
668 CCGAATTCTGCAGGCNGAYATYGGNGARTAYAT!	GGFII-12	(SEQ ID NO: 93)
669 AAGGATCCTGCAGNNCATRTAYTCNCCNGARTC!	GGFII-12	(SEQ ID NO: 94)
670 AAGGATCCTGCAGNNCATRTAYTCNCCRRTRTC!	GGFII-12	(SEQ ID NO: 95)
671 CCGAATTCTGCAGCAYCARGTNTGGCNGCNA!	GGFII-1	(SEQ ID NO: 96)
672 CCGAATTCTGCAGATRTTYTAYTGARCCNGARG!	GGFII-2	(SEQ ID NO: 97)
673 CCGAATTCTGCAGGGGNCNCNCNTTYCCNGT!	GGFII-3	(SEQ ID NO: 98)
674 CCGAATTCTGCAGTGGTYGTNGTNATHGARGG!	GGFII-4	(SEQ ID NO: 99)
677 AAGGATCCTGCAGYTTNGCNGCCCANACYTGRTG!	GGFII-1	(SEQ ID NO: 100)
678 AAGGATCCTGCAGGYTCNGGYTCCATRAARA!	GGFII-2	(SEQ ID NO: 101)
679 AAGGATCCTGCAGACNGGGAANGCNGGNGNCC!	GGFII-3	(SEQ ID NO: 102)
680 AAGGATCCTGCAGYTTNCCYTCDATNACNACRAAC!	GGFII-4	(SEQ ID NO: 103)
681 CATRTAYTCRTAYTCTCNGCAAGGATCCTGCAG!	GGFI-2	(SEQ ID NO: 104)
682 CCGAATTCTGCAGAAARGNGAYGCNCAYACNGA!	GGFI-1	(SEQ ID NO: 105)
683 GCNGCYAANGCYRCYTTNGCAAGGATCCTGCAG!	GGFI-14	(SEQ ID NO: 106)
684 GCNGCNAGNGCYTCYTTNGCAAGGATCCTGCAG!	GGFI-14,	(SEQ ID NO: 107)
685 TCNGCRAARTANCCNGCAAGGATCCTGCAG!	GGFII-1	(SEQ ID NO: 108)

FIG. 23B

PCR Primers for Factor I & Factor II

Unique PCR Primers for Factor II

Oligo Sequence	Comment	(SEQ ID NO: 109)
711 CATCGATCTGCAGGCTGATTCTGGAGAAATATATGTGCA!	3' RACE	(SEQ ID NO: 110)
712 AAGGATCCTGCAGCCACATCTCGAGTCGACATCGATT!	3' RACE	(SEQ ID NO: 111)
713 CCGAATTCTGCAGTGTATCAGCAAACTAGGAAATGACA!	3' RACE	(SEQ ID NO: 112)
721 CATCGATCTGCAGCCTAGTTTGCTGATCACTTTGCAC!	5' RACE	(SEQ ID NO: 113)
722 AAGGATCCTGCAGTATATTTCTCCAGAATCAGCCAGTG!	5' RACE; ANCHORED	(SEQ ID NO: 114)
725 AAGGATCCTGCAGGCACGACAGTAGGCATCTCTTA!	EXON A	(SEQ ID NO: 115)
726 CCGAATTCTGCAGCAGAACTTCGCATTAGCAAAGC!	EXON A	(SEQ ID NO: 116)
771 CATCCCGGGATGAAGAGTCAGGAGTCTGTGGCA!	EXONS B+A	(SEQ ID NO: 117)
772 ATACCCGGGCTGCAGACAAATGAGATTTTCACACACCTGCG!	ANCHORED	(SEQ ID NO: 118)
773 AAGGATCCTGCAGTTTGGAACTGCCACAGACTCCT!	ANCHORED	(SEQ ID NO: 119)
776 ATACCCGGGCTGCAGATGAGATTTTCACACACCTGCGTGA!	EXONS B+A	

FIG. 24
Summary of Contiguous GGF-II
cDNA Structures & Sequences

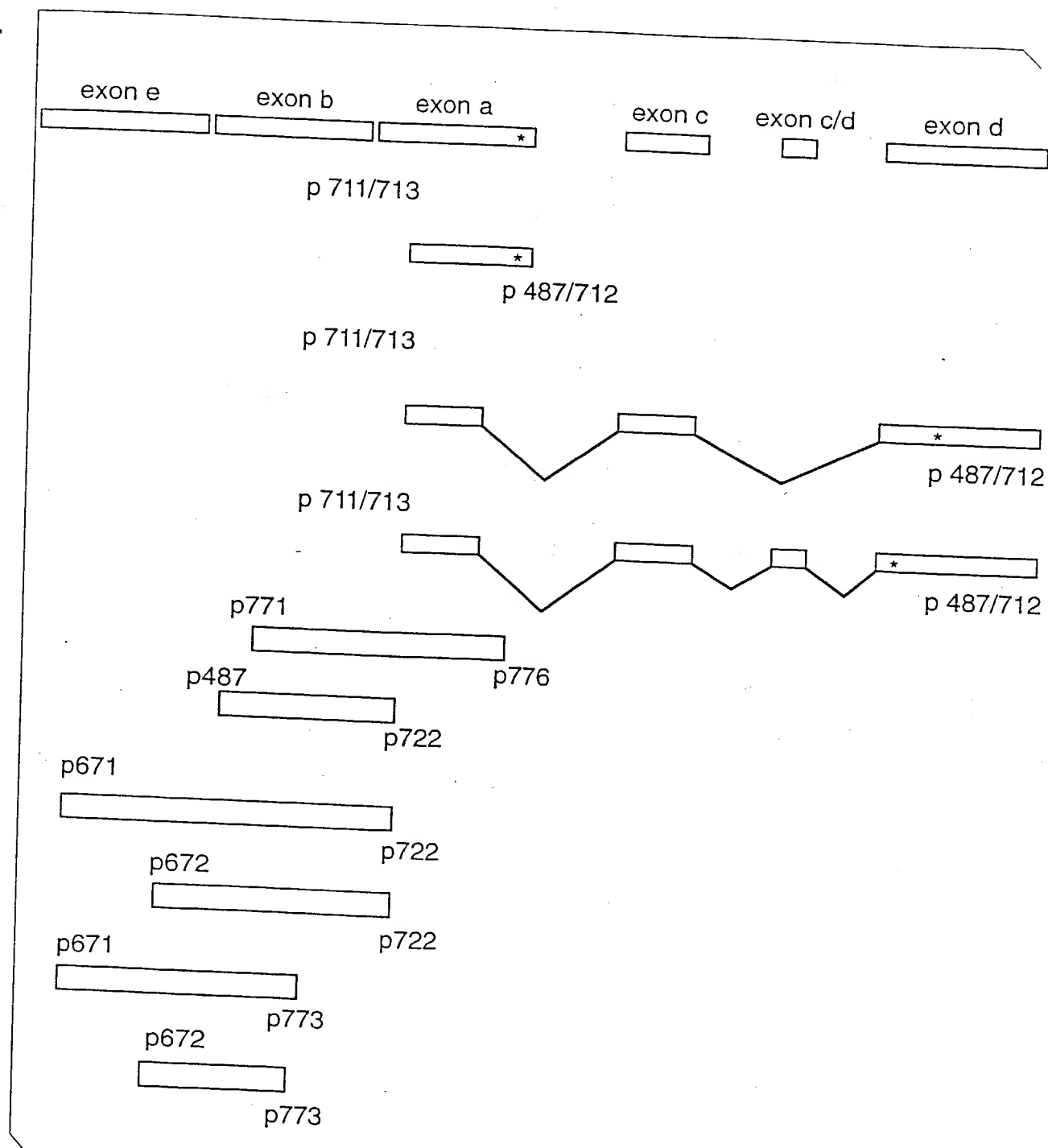


FIG. 25

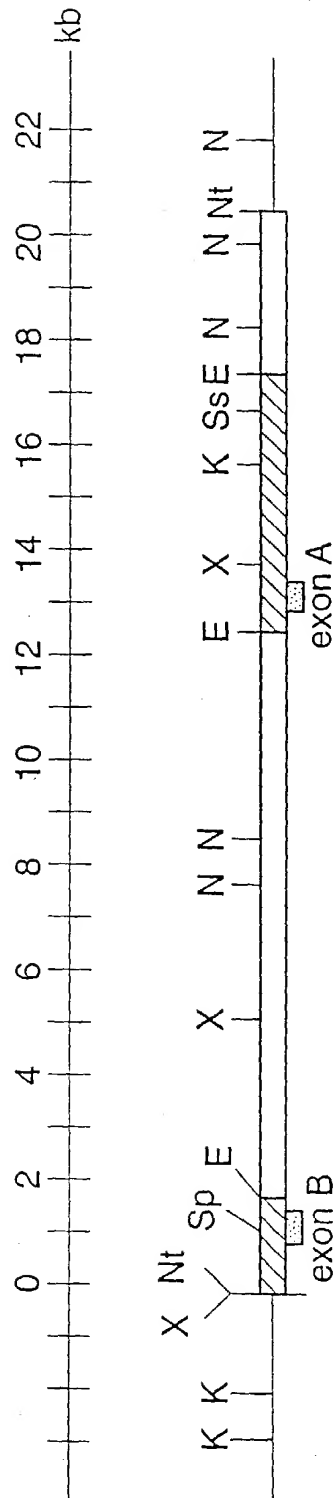


FIG. 26
Alternative Gene Products of Putative Bovine GGF-II

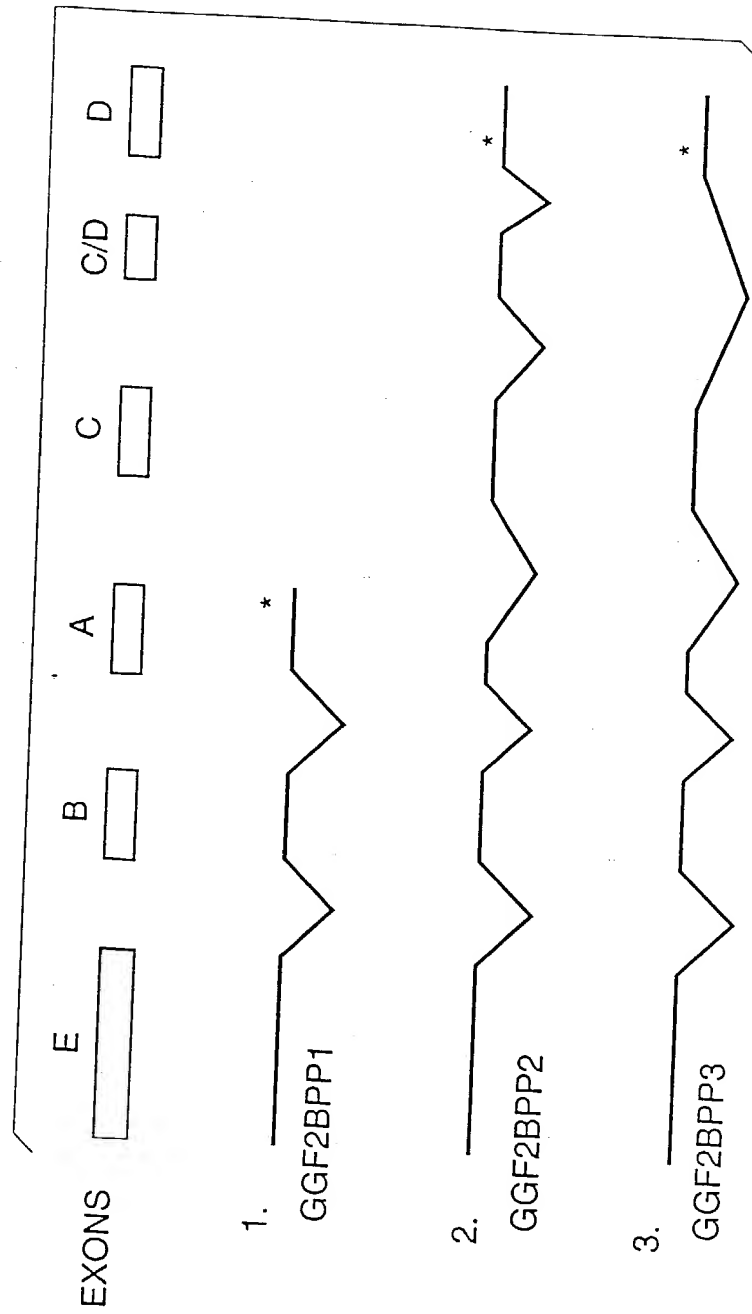


FIG. 27

GGF-II Peptides Identified in Deduced Amino Acid Sequences of Putative Bovine GGF-II Proteins

Peptide	Pos.	Sequence match	ID Sequences
II-1	1:	VHQVWAAK HQVWAAK AAGLK	(SEQ ID NO:120)
II-10	14:	DLLLXV GGLKK dsl1tv RLGAW	(SEQ ID NO:121)
II-03	21:	LGAWGPPAFPVXY LLTVR lgawghpafpscg RLKED	(SEQ ID NO:122) (SEQ ID NO:123)
II-02	41:	YIFFMEPEAXSSG KEDSR YIFFMEPEANSSG GPGR	(SEQ ID NO:124) (SEQ ID NO:125)
II-6	103:	LVLRL VAGSK LVLRL CETSS	(SEQ ID NO:126)
I-18	112:	EYKCLKFKWFKKATVM CETSS eysslkfkfkngsel SRKNK	(SEQ ID NO:127) (SEQ ID NO:128)
II-12	151:	KASLADSGEYMXK ELRIS KASLADSGEYMCK VISKL	(SEQ ID NO:129) (SEQ ID NO:130)
I-07	152:	ASLADEYEYMRK LRISK asladsgeymck VISKL	(SEQ ID NO:131) (SEQ ID NO:132)

FIG. 28A

SEQ ID NO: 133:

CCTGCAG	CAT CAA GTG TGG GCG GCG AAA GCC GGG GGC TTG AAG AAG GAC TCG CTG	55
	His Gln Val Trp Ala Ala Lys Ala Gly Gly Leu Lys Lys Asp Ser Leu	
CTC ACC GTG CGC CTG GGC GCC TGG GGC CAC CCC GCC TTC CCC TCC TGC	103	
Leu Thr Val Arg Leu Gly Ala Trp Gly His Pro Ala Phe Pro Ser Cys		
GGG CGC CTC AAG GAG GAC AGC AGG TAC ATC TTC ATG GAG CCC GAG	151	
Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe Met Glu Pro Glu		
GCC AAC AGC AGC GGC GGC CCC GGC CTT CCG AGC CTC CTT CCC CCC	199	
Ala Asn Ser Ser Gly Gly Pro Gly Arg Leu Pro Ser Leu Leu Pro Pro		
TCT CGA GAC GGG CCG GAA CCT CAA GAA GGA GGT CAG CCG GGT GCT GTG	247	
Ser Arg Asp Gly Pro Glu Pro Gln Glu Gly Gly Gln Pro Gly Ala Val		
CAA CGG TGC GCC TTG CCT CCC CGC TTG AAA GAG ATG AAG AGT CAG GAG	295	
Gln Arg Cys Ala Leu Leu Pro Pro Arg Leu Lys Glu Met Lys Ser Gln Glu		
TCT GTG GCA GGT TCC AAA CTA GTG CTT CGG TGC GAG ACC AGT TCT GAA	343	
Ser Val Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu		
TAC TCC TCT CTC AAG TTC AAG TGG Trp Phe Lys Asn Gly Ser Glu Leu Ser	391	
Tyr Ser Ser Leu Lys Lys Phe Lys Trp Phe Lys Asn Gly Ser Glu Leu Ser		
CGA AAG AAC AAA CCA GAA AAC ATC AAG ATA CAG AAA AGG CCG GGG AAG	439	
Arg Lys Asn Lys Pro Glu Asn Ile Lys Ile Gln Lys Arg Pro Gly Lys		
TCA GAA CTT CGC ATT AGC AAA GCG TCA CTG GCT GAT TCT GGA GAA TAT	487	
Ser Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr		
ATG TGC AAA GTG ATC AGC AAA CTA GGA AAT GAC AGT GCC TCT GCC AAC	535	
Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn		
ATC ACC ATT GTG GAG TCA AAC GGT AAG AGA TGC CTA CTG CGT GCT ATT	583	
Ile Thr Ile Val Glu Ser Asn Gly Lys Arg Cys Leu Leu Arg Ala Ile		
TCT CAG TCT CTA AGA GGA GTG ATC AAG GTA TGT GGT CAC ACT	625	
Ser Gln Ser Leu Arg Gly Val Ile Lys Val Cys Gly His Thr		
TGAATCAGC AGGTGTGTGA AATCTCATTTG TGAACAAATA AAAATCATGA AAGGAAAAA	685	
AAAAAAAAA AATCGATGTC GACTCGAGAT GTGGCTGCAG GTCCGACTCTA GAGGATCCC	744	

FIG. 28B

Nucleotide Sequences & Deduced Amino Acid Sequences of GGF2BPP2

SEQ ID NO: 134:

CCTGCAG CAT CAA GTG TGG GCG GCG AAA GCC GGG GGC TTG AAG GAC TCG CTG	55
His Gln Val Trp Ala Ala Lys Ala Gly Leu Lys Lys Asp Ser Leu	
CTC ACC GTG CGC CTG GGC GCC TGG GGC CAC CCC GCC TTC CCC TCC TGC	103
Leu Thr Val Arg Leu Gly Ala Trp Gly His Pro Ala Phe Pro Ser Cys	
GGG CGC CTC AAG GAG GAC AGC AGG TAC ATC TTC TTC ATG GAG CCC GAG	151
Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe Met Glu Pro Glu	
GCC AAC AGC AGC GGC GGC CCC GGC CGC CTT CCG AGC CTC CTT CCC CCC	199
Ala Lys Ser Ser Gly Gly Pro Gly Arg Leu Pro Ser Leu Leu Pro Pro	
TCT CGA GAC GGG CCG GAA CCT CAA GAA GGA GGT CAG CCG GGT GCT GTG	247
Ser Arg Asp Gly Pro Glu Pro Gln Glu Gly Gly Gln Pro Gly Ala Val	
CAA CGG TGC GCC TTG CCT CCC CGC TTG AAA GAG ATG AAG AGT CAG GAG	295
Gln Arg Cys Ala Leu Pro Pro Arg Leu Lys Glu Met Lys Ser Gln Glu	
TCT GTG GCA GGT TCC AAA CTA GTG CTT CGG TGC GAG ACC AGT TCT GAA	343
Ser Val Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu	
TAC TCC TCT CTC AAG TTC AAG TGG TTC AAG AAT GGG AGT GAA TTA AGC	391
Tyr Ser Ser Leu Lys Phe Lys Trp Phe Lys Asn Gly Ser Glu Leu Ser	
CGA AAG AAC AAA CCA GAA AAC ATC AAG ATA CAG AAA AGG CCG GGG AAG	439
Arg Lys Asn Lys Gly Gly Asn Ile Lys Ile Gln Lys Arg Pro Gly Lys	
TCA GAA CTT CGC ATT AGC AAA GCG TCA CTG GCT GAT TCT GGA GAA TAT	487
Ser Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr	
ATG TGC AAA GTG ATC AGC AAA CTA GGA AAT GAC AGT GCC TCT GCC AAC	535
Met Cys Lys Lys Val Ile Ser Lys Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn	

FIG. 28C

Nucleotide Sequences & Deduced Amino Acid Sequences of GG2BPPP2

ATC ACC ATT GTG GAG TCA AAC GCC ACA TCC ACA TCT ACA GCT GGG ACA Ile Thr <u>Ile Val Glu Ser Asn Ala Thr</u>	583
AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT Ser His Leu Val Lys Ser Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	631
GGA GGC GAG TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	679
TTG TGC AAG TGC CAA CCT GGA TTC ACT GGA GCG AGA TGT ACT GAG AAT Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn	727
GTG CCC ATG AAA GTC CAA ACC CAA GAA AGT GCC CAA ATG AGT TTA CTG Val Pro Met Lys Val Gln Thr Gln Glu Ser Ala Gln Met Ser Leu Leu	775
GTG ATC GCT GCC AAA ACT ACG TAATGGCCAG CTTCTACAGT ACGTCCACTC Val Ile Ala Ala Lys Thr Thr	826
CCTTCTGTGTC TCTGCCCTGAA TAGCGCATCT CAGTCGGTGC CGCTTCTTG TTGCCGCATC	886
TCCCCCTCAGA TTCCCTCCTAG AGCTAGATGC GTTTTACCAG GTCTAACATT GACTGCCCTCT	946
GCCTGTGCGCA TGAGAACATT AACACAAGCG ATTGTATGAC TTCCTCTGTC CGTGACTAGT	1006
GGGCTCTGAG CTACTCGTAG GTGCGTAAGG CTCCAGTGTT TCTGAAATTG ATCTTGAATT	1066
ACTGTGATAC GACATGATAG TCCCTCTCAC CCAGTGCAAT GACAATAAAG GCCTTGAAAA	1126
GTCAAAAAAA AAAAAAATAA TGTGCGACTCG AGATGTGGCT GCAGGTCGAC	1186
TCTAGAG	1193

FIG. 28D

Nucleotide Sequences & Deduced Amino Acid Sequences of GGF2BPPP3

SEQ ID NO: 135:

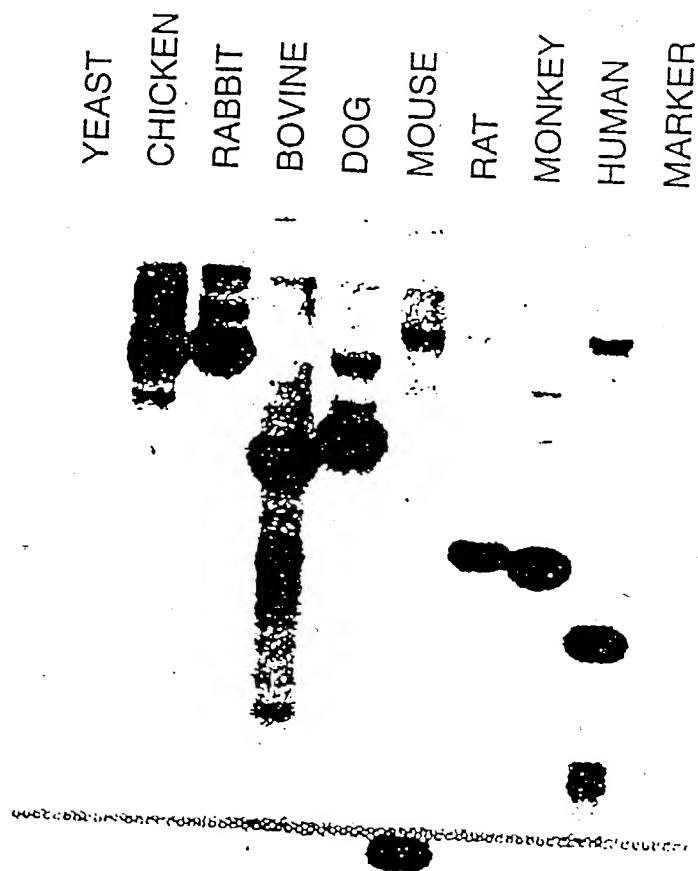
CCTGCAG	CAT	CAA	GTG	TGG	GCG	GCG	Ala	Ala	GCC	AAA	GCC	GGG	GGC	TTG	AAG	AAG	GAC	TCG	CTG	55
	His	Gln	Val	Trp	Ala	Ala	Ala	Lys	Ala	Lys	Ala	Gly	Gly	Leu	Lys	Lys	Asp	Ser	Leu	
CTC	ACC	GTG	CGC	CTG	GGC	GCC	Ala	Trp	Gly	GGC	CAC	CCC	GCC	TTC	CCC	TCC	TGC		103	
Leu	Thr	Val	Arg	Leu	Gly	Ala	Ala	Trp	Gly	His	Pro	Ala	Ala	Phe	Pro	Ser	Cys			
GGG	CGC	CTC	AAG	GAG	GAC	AGC	AGG	Arg	TAC	ATC	TTC	TTC	ATG	GAG	CCC	GAG		151		
Gly	Arg	Leu	Lys	Glu	Asp	Ser	Arg	Tyr	Ile	Phe	Phe	Met	Glu	Pro	Glu					
GCC	AAC	AGC	AGC	GGC	GGG	CCC	Gly	Pro	Gly	Arg	Leu	Pro	Ser	Leu	Pro	Pro	199			
Ala	Asn	Ser	Ser	Gly	Gly	Pro	Gly	Arg	Leu	Pro	Pro	Pro	Pro	Pro	Pro	Pro				
TCT	CGA	GAC	GGG	CCG	GAA	CCT	CAA	GAA	GGA	GGT	CAG	CCG	GGT	GCT	GTG		247			
Ser	Arg	Asp	Gly	Pro	Glu	Pro	Gln	Glu	Gly	Gly	Gln	Pro	Gly	Ala	Val					
CAA	CGG	TGC	GCC	TTG	CCT	CCC	CGC	TTG	AAA	GAG	ATG	AAG	AGT	CAG	GAG	295				
Gln	Arg	Cys	Ala	Leu	Pro	Pro	Arg	Leu	Lys	Glu	Met	Lys	Ser	Gln	Glu					
TCT	GTG	GCA	GGT	TCC	AAA	CTA	GTG	CTT	CGG	TGC	GAG	ACC	AGT	TCT	GAA	343				
Ser	Val	Ala	Gly	Ser	Lys	Leu	Val	Leu	Arg	Cys	Glu	Thr	Ser	Ser	Glu					
TAC	TCC	TCT	CTC	AAG	TTC	AAG	TGG	TTC	AAG	AAT	GGG	AGT	GAA	TTA	AGC	391				
Tyr	Ser	Ser	Leu	Lys	Phe	Lys	Trp	Phe	Lys	Asn	Gly	Ser	Glu	Leu	Ser					
CGA	AAG	AAC	AAA	CCA	GAA	AAC	ATC	AAG	ATA	CAG	AAA	AGG	CCG	GGG	AAG	439				
Arg	Lys	Asn	Lys	Pro	Glu	Asn	Ile	Lys	Ile	Gln	Lys	Arg	Pro	Pro	Lys					
TCA	GAA	CTT	CGC	ATT	AGC	AAA	GCG	TCA	CTG	GCT	GAT	TCT	GGA	GAA	TAT	487				
Ser	Glu	Leu	Arg	Ile	Ser	Lys	Ala	Ser	Leu	Ala	Asp	Ser	Gly	Glu	Tyr					

FIG. 28E

Nucleotide Sequences & Deduced Amino Acid Sequences of GGF2BPP3

ATG TGC AAA GTG ATC AGC AAA CTA GGA AAT GAC AGT GCC TCT GCC AAC Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn	535
ATC ACC ATT GTG GAG TCA AAC GCC ACA TCC ACA TCT ACA GCT GGG ACA Ile Arg Ile Val Glu Ser Asn Ala Thr Ser Thr Ser Thr Ala Gly Thr	583
AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	631
GGA GGC GAG TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	679
TTG TGC AAG TGC CCA AAT GAG TTT ACT GGT GAT CGC TGC CAA AAC TAC Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr	727
GTA ATG GCC AGC TTC TAC AGT ACG TCC ACT CCC TTT CTG TCT CTG CCT Val Met Ala Ser Phe Tyr Ser Thr Ser Thr Pro Phe Leu Ser Leu Pro	775
GAA TAGCGCATCT CAGTCGGTGC CGCTTTCTTG TTGCCGCGATC TCCCCTCAGA TTCCCGCCTAG Glu	838
AGCTAGATGC GTTTTACCAG GTCTAACATT GACTGCCCTCT GCCTGTGCGA TGAGAACATT	898
AACACAAGCG ATTGTATGAC TTCCCTCTGTC CGTGACTAGT GGGCTCTGAG CTACTCGTAG	958
GTGCGTAAGG CTCCAGTGT TCTGAAATG ATCTTGAATT ACTGTGATAC GACATGATAG	1018
TCCCTCTCAC CCAGTGCAAT GACAATAAAG GCCTTGAAAA GTCAAAAAAA AAAAAAAA	1078
AAAAATCGAT GTCGACTCGA GATGTGGCTG	1108

FIG. 29



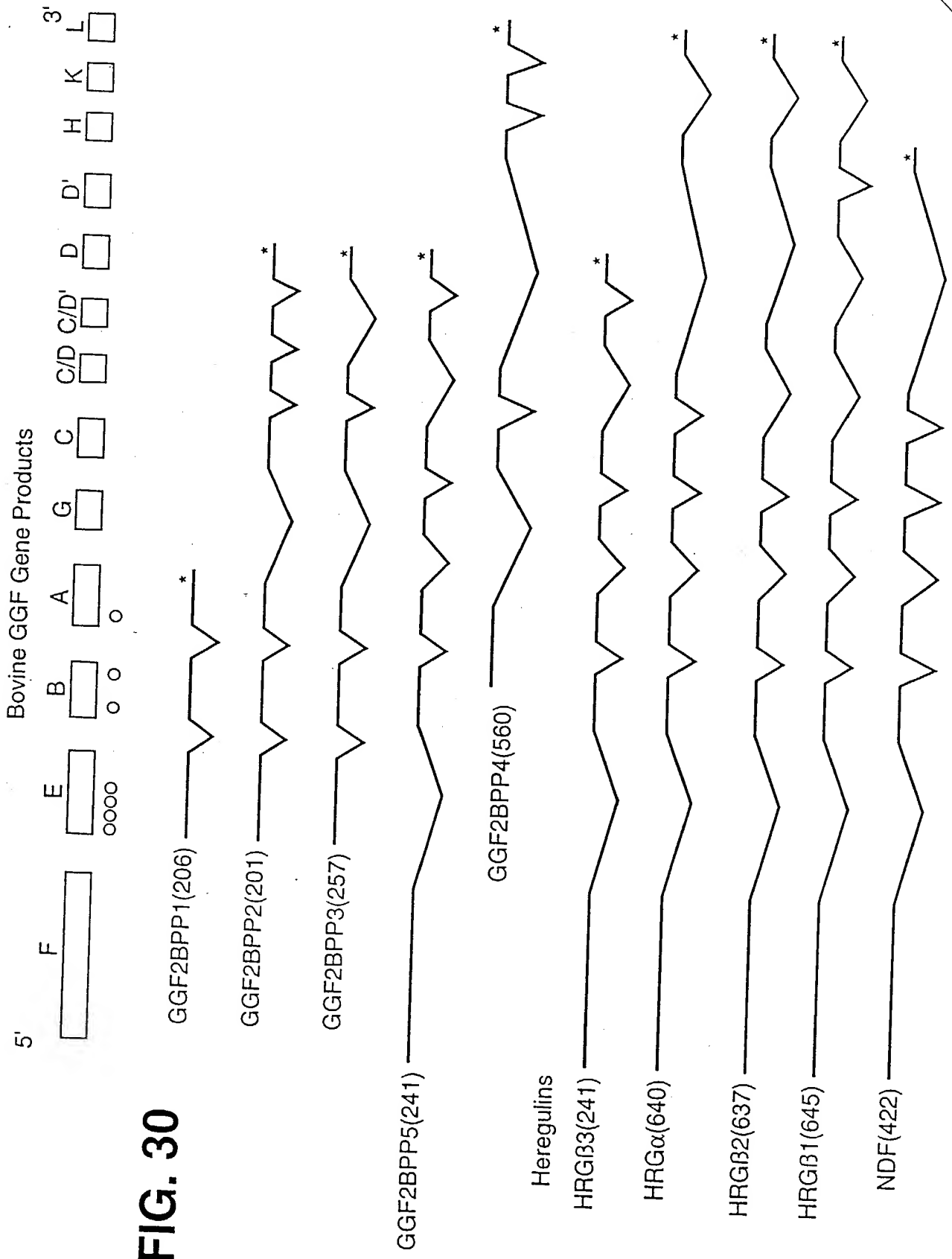


FIG. 30

FIG. 31A

Coding Segments
of Glial Growth
Factor/Heregulin
Gene

CODING SEGMENT F: (SEQ ID NO: 136 (bovine) and 173 (human))		
AGTTTCCCCC	CCCAACTTGT CGAACTCTG GGCTCGCGCG CAGGGCAGGA GCGGAGCGGC	60
GGCGGCTGCC	CAGGCGATGC GAGCGCGGGC CGGACGGTAA TCGCCTCTCC CTCCCTCGGGC	120
TGCGAGCGCG	CCGGACCGAG GCAGCGACAG GAGCGGACCG CGGCGGGAAC CGAGGACTCC	180
CCAGCGGCGC	GCCAGCAGGA GCCACCCCGC GAGNCGTGCG ACCGGGACGG AGCGCCCGCC	240
AGTCCCAGGT	GGCCCCGACC GCACGTTGCG TCCCCGCGCT CCCCCCGGC GACAGGAGAC	300
GCTCCCCCCC	ACGCCGCGCG CGCCTCGGCC CGGTGCTGG CCGCCTCCA CTCCGGGGAC	360
	CGCGAG CGCCTCAGCG CGGCCGCTCG CTCTC..CCC CTCGAGGGAC	
AAACTTTTCC	CGAAGCCGAT CCCAGCCCTC GGACCCAAAC TTGTGCGCGG TCGCCTTCGC	420
AAACTTTTCC	CAAACCCGAT CCGAGCCCTT GGACCAA... ..C TCGCCTGCGC	
Met Ser Glu Arg Arg		
CGGAGCCCGT	CCGCGCAGAG CGTGCACTTC TCGGCGGAG ATG TCG GAG CGC AGA	474
CGAGAGCCGT	CCGCGTAGAG CGCTC.CGTC TCGGCGGAG ATG TCC GAG CGC AAA	
		K
Glu Gly Lys Lys Gly Lys Gly Lys Gly Lys Lys Asp Arg Gly Ser Gly		
GAA GGC AAA GGC AAG GGC AAG GGC AAG AAG AAG AAG GGC CGA GGC TCC GGC		522
GAA GGC AGA	GGC AAA GGC AAG GGC AAG AAG AAG GAG CGA GGC TCC GGC	
	R	E
Lys Lys Pro Val Pro Ala Ala Gly Gly Pro Ser Pro Ala		
AAG AAG CCC GTG CCC GCG GCT GGC GGC CCG AGC CCA G		559
AAG AAG CCG GAG TCC GCG GCG AGC CAG AGC CCA G		
	E	S

FIG. 31B

CODING SEGMENT E: (SEQ ID NO: 137)

CC CAT CAN GTG TGG GCG GCG AAA GCC GGG GGC TTG AAG AAG GAC TCG	47
His Gln Val Trp Ala Ala Lys Ala Gly Gly	
CTG CTC ACC GTG CGC CTG GGC GCC TGG GGC CAC CCC TTC CCC TCC	95
Leu Leu Thr Val Arg Leu Gly Ala Trp Gly His Pro Ala Phe Pro Ser	
TGC GGG CGC CTC AAG GAG GAC AGC AGG TAC ATC TTC ATG GAG CCC	143
Cys Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Met Glu Pro	
GAG GCC AAC AGC AGC GGC GGC CCC GGC CTT CCG AGC CTC CTT CCC	191
Glu Ala Asn Ser Ser Gly Gly Pro Gly Arg Leu Pro Ser Leu Leu Pro	
CCC TCT CGA GAC GGC CCG GAA CCT CAA GAA GGA GGT CAG CCG GGT GCT	239
Pro Ser Arg Asp Gly Pro Glu Pro Gln Glu Gly Gln Pro Gly Ala	
GTG CAA CGG TGC G	252
Val Gln Arg Cys	

CODING SEGMENT B: (SEQ ID NO: 138 (bovine, top) and 174 (human, bottom))

Gly	Ser	Lys	Leu	Val	Leu	Arg	Cys	Glu	Thr	Ser	Ser	Glu	Tyr	Ser
GGT	TCC	AAA	CTA	GTG	CTT	CGG	TGC	GAG	ACC	AGT	TCT	GAA	TAC	TCC
GGT	TCC	AAA	CTA	GTC	CTT	CGG	TGT	GAA	ACC	AGT	TCT	GAA	TAC	TCC

Lys	Pro	Gln	Asn	Ile	Lys	Ile	Gln	Lys	Arg	Pro	Gly
AAA	CCA	CAA	AAC	ATC	AAG	ATA	CAG	AAA	AGG	CCG	GG
AAA	CCA	CAA	AAT	ATC	AAG	ATA	CAA	AAA	AAG	CCA	GG

K

FIG. 31D

CODING SEGMENT A: (SEQ ID NO: 139 (bovine) and 175 (human))

Lys	Ser	Glu	Leu	Arg	Ile	Ser	Lys	Ala	Ser	Leu	Ala	Asp	Ser	Gly	46		
G	AAG	TCA	GAA	CTT	CGC	ATT	AGC	AAA	GCG	TCA	CTG	GCT	GAT	TCT	GGA		
G	AAG	TCA	GAA	CTT	CGC	ATT	AAC	AAA	GCA	TCA	CTG	GCT	GAT	TCT	GGA		
N																	
Glu	Tyr	Met	Cys	Lys	Val	Ile	Ser	Lys	Leu	Gly	Asn	Asp	Ser	Ala	Ser	94	
GAA	TAT	ATG	TGC	AAA	GTG	ATC	AGC	AAA	CTA	GGA	AAT	GAC	AGT	GCC	TCT		
GAG	TAT	ATG	TGC	AAA	GTG	ATC	AGC	AAA	TTA	GGA	AAT	GAC	AGT	GCC	TCT		
Ala	Asn	Ile	Thr	Ile	Val	Glu	Ser	Asn	Ala								122
GCC	AAC	ATC	ACC	ATT	GTG	GAG	TCA	AAC	G								
GCC	AAT	ATC	ACC	ATC	GTG	GAA	TCA	AAC	G								

FIG. 31E

CODING SEGMENT A': (SEQ ID NO: 140)

TCTAAAACTA CAGAGACTGT ATTTTCATGA TCATCATAGT TCTGTGAAAT ATACTTAAAC	60
CGCTTTGGTC CTGATCTTGT AGG AAG TCA GAA CTT CGC ATT AGC AAA GCG	110
Lys Ser Glu Leu Arg Ile Ser Lys Ala	
TCA CTG GCT GAT TCT GGA GAA TAT ATG TGC AAA GTG ATC AGC AAA CTA	158
Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys Val Ile Ser Lys Leu	
GGA AAT GAC AGT GCC TCT GCC AAC ATC ACC ATT GTG GAG TCA AAC GGT	206
Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile Val Glu Ser Asn Gly	
AAG AGA TGC CTA CTG CGT GCT ATT TCT CAG TCT CTA AGA GGA GTG ATC	254
Lys Arg Cys Leu Leu Arg Ala Ile Ser Gln Ser Leu Arg Gly Val Ile	
AAG GTA TGT GGT CAC ACT TGAATCACGC AGGTGTGTGA AATCTCATTG	302
Lys Val Cys Gly His Thr	
TGAACAAATA AAAATCATGA AAGGAAAACT CTATGTTTGA AATATCTTAT GGGTCCTCCT	362
GTAAAGCTCT TCACTCCATA AGGTGAAATA GACCTGAAAT ATATATAGAT TATT	417

FIG. 31F

CODING SEGMENT G: (SEQ ID NO: 141 (bovine) and 176 (human))

Glu Ile Thr Thr Gly Met Pro Ala Ser Thr Glu Thr Ala Tyr Val Ser 47
AG ATC ACC ACT GGC ATG CCA GCC TCA ACT GAG ACA GCG TAT GTG TCT
||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

AG ATC ATC ACT GGT ATG CCA GCC TCA ACT GAA GGA GCA TAT GTG TCT
I G

Ser Glu Ser Pro Ile Arg Ile Ser Val Ser Thr Glu Gly Thr Asn Thr 95
TCA GAG TCT CCC ATT AGA ATA TCA GTA TCA ACA GAA GGA ACA AAT ACT
||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
TCA GAG TCT CCC ATT AGA ATA TCA GTA TCC ACA GAA GGA GCA AAT ACT
A

Ser Ser Ser
TCT TCA T
||| ||| |||
TCT TCA T 102

FIG. 31G

CODING SEGMENT C: (SEQ ID NO: 160 (bovine) and 177 (human))

Thr	Ser	Thr	Ser	Thr	Ala	Gly	Thr	Ser	His	Leu	Val	Lys	Cys	Ala	
CC	ACA	TCC	ACA	TCT	ACA	GCT	GGG	ACA	AGC	CAT	CTT	GTC	AAG	TGT	GCA
CT	ACA	TCT	ACA	TCC	ACC	ACT	GGG	ACA	AGC	CAT	CTT	GTA	AAA	TGT	GCG
						T									
Glu	Lys	Glu	Lys	Thr	Phe	Cys	Val	Asn	Gly	Gly	Glu	Cys	Phe	Met	Val
GAG	AAG	GAG	GAG	AAA	ACT	TTC	TGT	GTG	AAT	GGA	GGC	GAG	TGC	TTC	ATG
GAG	AAG	GAG	GAG	AAA	ACT	TTC	TGT	GTG	AAT	GGA	GGG	GAG	TGC	TTC	ATG
Lys	Asp	Leu	Ser	Asn	Pro	Ser	Arg	Tyr	Leu	Cys					
AAA	GAC	CTT	TCA	AAT	CCC	TCA	AGA	TAC	TTG	TGC					
AAA	GAC	CTT	TCA	AAC	CCC	TCC	AGA	TAC	TTG	TGC					

36/78

47

95

128

37/78

48

69

Met	Lys	Val	Gln	Thr	Gln	Glu
ATG	AAA	GTC	CAA	ACC	CAA	GAA
ATG	AAA	GTC	CAA	AAC	CAA	GAA
				N		

FIG. 31L

CODING SEGMENT H: (SEQ ID NO: 146 (bovine) and 181 (human))

Lys	Ala	Glu	Glu	Leu	Tyr	Gln	Lys	Arg	Val	Leu	Thr	Ile	Thr	Gly	Ile	48
AAA	CGG	GAG	GAG	CTC	TAC	CAG	AAG	AGA	GTG	CTC	ACC	ATT	ACC	GGC	ATT	
AAG	CGG	GAG	GAG	CTG	TAC	CAG	AAG	AGA	GTG	CTG	ACC	ATA	ACC	GGC	ATC	
Cys	Ile	Ala	Leu	Leu	Val	Val	Gly	Ile	Met	Cys	Val	Val	Val	Tyr	Cys	96
TGC	ATC	GCG	CTG	CTC	GTG	GTT	GGC	ATC	ATG	TGT	GTG	GTG	GTC	TAC	TGC	
TGC	ATC	GCC	CTC	CTT	GTG	GTC	GGC	ATC	ATG	TGT	GTG	GTG	GCC	TAC	TGC	
Lys	Thr	Lys	Lys	Gln	Arg	Lys	Lys	Leu	His	Asp	Arg	Leu	Arg	Gln	Ser	144
AAA	ACC	AAG	AAA	CAA	CGG	AAA	AAG	CTT	CAT	GAC	CGG	CTT	CGG	CAG	AGC	
AAA	ACC	AAG	AAA	CAG	CGG	AAA	AAG	CTG	CAT	GAC	CGT	CTT	CGG	CAG	AGC	
Leu	Arg	Ser	Glu	Arg	Asn	Thr	Met	Met	Asn	Val	Ala	Asn	Gly	Pro	His	192
CTT	CGG	TCT	GAA	AGA	AAC	ACC	ATG	ATG	AAC	GTA	GCC	AAC	GGG	CCC	CAC	
CTT	CGG	TCT	GAA	CGA	AAC	AAT	ATG	ATG	AAC	ATT	GCC	AAT	GGG	CCT	CAC	
His	Pro	Asn	Pro	Pro	Pro	Glu	Asn	Val	Gln	Leu	Val	Asn	Gln	Tyr	Val	240
CAC	CCC	AAT	CCG	CCC	CCC	GAG	AAC	GTG	CAG	CTG	GTG	AAT	CAA	TAC	GTA	
CAT	CCT	AAC	CCA	CCC	CCC	GAG	AAT	GTC	CAG	CTG	GTG	AAT	CAA	TAC	GTA	
Ser	Lys	Asn	Val	Ile	Ser	Ser	Glu	His	Ile	Val	Glu	Arg	Glu	Ala	Glu	288
TCT	AAA	AAT	GTC	ATC	TCT	AGC	GAG	CAT	ATT	GTT	GAG	AGA	GAG	GCG	GAG	
TCT	AAA	AAC	GTC	ATC	TCC	AGT	GAG	CAT	ATT	GTT	GAG	AGA	GAA	GCA	GAG	

FIG. 31M

Ser	Ser	Phe	Ser	Thr	Ser	His	Tyr	Thr	Ser	Thr	Ala	His	His	Ser	Thr	336
AGC	TCT	TTT	TCC	ACC	AGT	CAC	TAC	ACT	TCG	ACA	GCT	CAT	CAT	TCC	ACT	
I																
ACA	TCC	TTT	TCC	ACC	AGT	CAC	TAT	ACT	TCC	ACA	GCC	CAT	CAC	TCC	ACT	
T																
Thr	Val	Thr	Gln	Thr	Pro	Ser	His	Ser	Trp	Ser	Asn	Gly	His	Thr	Glu	384
ACT	GTC	ACT	CAG	ACT	CCC	AGT	CAC	AGC	TGG	AGC	AAT	GGA	CAC	ACT	GAA	
ACT	GTC	ACC	CAG	ACT	CCT	AGC	CAC	AGC	TGG	AGC	AAC	GGA	CAC	ACT	GAA	
Ser	Ile	Ile	Ser	Glu	Ser	His	Ser	Val	Ile	Val	Met	Ser	Ser	Val	Glu	432
AGC	ATC	ATT	TCG	GAA	AGC	CAC	TCT	GTC	ATC	GTG	ATG	TCA	TCC	GTA	GAA	
AGC	ATC	CTT	TCC	GAA	AGC	CAC	TCT	GTA	ATC	GTG	ATG	TCA	TCC	GTA	GAA	
L																
Asn	Ser	Arg	His	Ser	Ser	Pro	Thr	Gly	Gly	Pro	Arg	Gly	Arg	Leu	Asn	480
AAC	AGT	AGG	CAC	AGC	AGC	CCG	ACT	GGG	GGC	CCG	AGA	GGA	CGT	CTC	AAT	
AAC	AGT	AGG	CAC	AGC	AGC	CCA	ACT	GGG	GGC	CCA	AGA	GGA	CGT	CTT	AAT	
Gly	Leu	Gly	Gly	Pro	Arg	Glu	Cys	Asn	Ser	Phe	Leu	Arg	His	Ala	Arg	528
GGC	TTG	GGA	GGC	CCT	CGT	GAA	TGT	AAC	AGC	TTC	CTC	AGG	CAT	GCC	AGA	
GGC	ACA	GGA	GGC	CCT	CGT	GAA	TGT	AAC	AGC	TTC	CTC	AGG	CAT	GCC	AGA	
T																
Glu	Thr	Pro	Asp	Ser	Tyr	Arg	Asp	Ser	Pro	His	Ser	Glu	Arg			569
GAA	ACC	CCT	GAC	TCC	TAC	CGA	GAC	TCT	CCT	CAT	AGT	GAA	AG			
GAA	ACC	CCT	GAT	TCC	TAC	CGA	GAC	TCT	CCT	CAT	AGT	GAA	AG			

FIG. 31N

CODING SEGMENT K: (SEQ ID NO: 161)

A	CAT	AAC	CTT	ATA	GCT	GAG	CTA	AGG	AGA	AAC	AAG	GCC	CAC	AGA	TCC	46
	His	Asn	Leu	Ile	Ala	Glu	Leu	Arg	Arg	Asn	Lys	Ala	His	Arg	Ser	
AAA	TGC	ATG	CAG	ATC	CAG	CTT	TCC	GCA	ACT	CAT	CTT	AGA	GCT	TCT	TCC	94
	Lys	Cys	Met	Gln	Ile	Gln	Leu	Ser	Ala	Thr	His	Leu	Arg	Ala	Ser	
ATT	CCC	CAT	TGG	GCT	TCA	TTC	TCT	AAG	ACC	CCT	TGG	CCT	TTA	GGA	AG	141
	Ile	Pro	His	Trp	Ala	Ser	Phe	Ser	Lys	Thr	Pro	Trp	Pro	Leu	Gly	Arg

FIG. 310

CODING SEGMENT L: (SEQ ID NO: 147 (bovine) and 182 (human))

Tyr Val Ser Ala Met Thr Thr Pro Ala Arg Met Ser Pro Val Asp	46
G TAT GTA TCA GCA ATG ACC ACC CCG GCT CGT ATG TCA CCT GTA GAT	
G TAT GTG TCA GCC ATG ACC ACC CCG GCT CGT ATG TCA CCT GTA GAT	
Phe His Thr Pro Ser Ser Pro Lys Ser Pro Pro Ser Glu Met Ser Pro	94
TTC CAC ACG CCA AGC TCC CCC AAG TCA CCC CCT TCG GAA ATG TCC CCG	
TTC CAC ACG CCA AGC TCC CCC AAA TCG CCC CCT TCG GAA ATG TCT CCA	
Pro Val Ser Ser Thr Thr Val Ser Met Pro Ser Met Ala Val Ser Pro	142
CCC GTG TCC AGC ACG ACG GTC TCC ATG CCC TCC ATG GCG GTC AGT CCC	
CCC GTG TCC AGC ATG ACG GTG TCC ATG CCT TCC ATG GCG GTC AGC CCC	
Phe Val Glu Glu Glu Arg Pro Leu Leu Val Thr Pro Pro Arg Leu	190
TTC GTG GAA GAG GAG AGA CCC CTG CTC CTT GTG ACG CCA CCA CGG CTG	
TTC ATG GAA GAA GAG AGA CCT CTA CTT CTC GTG ACA CCA CCA AGG CTG	
Arg Glu Lys - Tyr Asp His His Ala Gln Phe Asn Ser Phe His	238
CGG GAG AAG ... TAT GAC CAC CAC GCC CAG CAA TTC AAC TCG TTC CAC	
CGG GAG AAG AAG TTT GAC CAT CAC CCT CAG CAG TTC AGC TTC TTC CAC	
Cys Asn Pro Ala His Glu Ser Asn Ser Leu Pro Pro Ser Pro Leu Arg	286
TGC AAC CCC GCG CAT GAG AGC AAC AGC CTG CCC CCC AGC CCC TTG AGG	
CAC AAC CCC GCG CAT GAC AGT AAC AGC CTC CCT GCT AGC CCC TTG AGG	

FIG. 31P

[illegible]

FIG. 31Q

Val Gly Glu Asp Thr Pro Phe Leu Ala Ile Gln Asn Pro Leu Ala Ala	526
GTA GGA GAA GAT ACG CCT TTC CTG GCC ATA CAG AAC CCC CTG GCA GCC	
GTA GGT GAA GAT ACG CCT TTC CTG GGC ATA CAG AAC CCC CTG GCA GCC	
G	
Ser Leu Glu Ala Ala Pro Ala Phe Arg Leu Val Asp Ser Arg Thr Asn	574
AGT CTC GAG GCG GCC CCT GGC TTC CGC CTG GTC GAC AGC AGG ACT AAC	
AGT CTT GAG GCA ACA CCT GGC TTC CGC CTG GCT GAC AGC AGG ACT AAC	
A	
Pro Thr Gly Gly Phe Ser Pro Gln Glu Glu Leu Gln Ala Arg Leu Ser	622
CCA ACA GGC GGC TTC TCT CCG CAG GAA GAA TTG CAG GCC AGG CTC TCC	
CCA GCA GGC CGC TTC TCG ACA CAG GAA GAA ATC CAG GCC AGG CTG TCT	
A R	
Gly Val Ile Ala Asn Gln Asp Pro Ile Ala Val *	672
GGT GTA ATC GCT AAC CAA GAC CCT ATC GCT GTC TAA AAC CGA AAT ACA	
AGT GTA ATT GCT AAC CAA GAC CCT ATT GCT GTA TAA AAC CTA AAT AAA	
S	
CCC ATA GAT TCA CCT GTA AAA CTT TAT TTT ATA TAA TAA AGT ATT CCA	718
CAC ATA GAT TCA CCT GTA AAA CTT TAT TTT ATA TAA TAA AGT ATT CCA	
CCT TAA ATT AAA CAA	733
CCT TAA ATT AAA CAA	

FIG. 31R

HUMAN CODING SEGMENT E:
(SEQ ID NO: 163)

ATG AGA TGG CGA CGC GCC CGC CGC CGC TCC GGG CGT CCC GGC CCC CGG	48
Met Arg Trp Arg Arg Ala Pro Arg Arg Arg Ser Gly Arg Pro Gly Pro Arg	
GCC CAG CGC CCC GGC TCC GCC GGC CGC CGC TCG CCG CCG CTG CCG CTG	96
Ala Gln Arg Pro Gly Ser Ala Ala Arg Ser Ser Pro Pro Leu Pro Leu	
CTG CCA CTA CTG CTG CTG GGG ACC CGC GCG CTG GCG CCG GCG GCG	144
Leu Pro Leu Leu Leu Leu Leu Leu Gly Thr Ala Ala Leu Ala Pro Gly Ala	
GCG GCC GGC AAC GAG GCG GCT CCC GCG GCG GCG TCG GTG TGC TAC TCG	192
Ala Ala Gly Asn Glu Ala Ala Pro Ala Gly Ala Ser Val Cys Tyr Ser	
TCC CCG CCC AGC GTG GGA TCG GTG CAG GAG CTA GCT CAG CGC GCC GCG	240
Ser Pro Pro Ser Ser Val Gly Ser Val Gln Gln Glu Leu Ala Arg Ala Ala	
GTG GTG ATC GAG GGA AAG GTG CAC CCG CAG CCG CAG CAG GCG GCA	288
Val Val Ile Glu Gly Lys Lys Val His Pro Gln Arg Arg Gln Gln Gly Ala	
CTC GAC AGG AAG GCG GCG GCG GCG GCG GCG GCA GCG GCG TGG GCG	336
Leu Asp Arg Lys Ala Ala Ala Ala Ala Gly Glu Ala Gly Ala Trp Gly	
GGC GAT CGC GAG CCG CCA GCC GCG GCG CCA CCG GCG CTG GCG CCG CCC	384
Gly Asp Arg Glu Glu Pro Pro Ala Ala Ala Gly Pro Arg Ala Leu Gly Pro Pro	
GCC GAG GAG CCG CTG CTC GCC GCC AAC GCG ACC GTG CCC TCT TGG CCC	432
Ala Glu Glu Pro Leu Leu Ala Ala Asn Gly Thr Val Pro Ser Trp Pro	
ACC GCC CCG GTG CCC AGC GCC GCG GAG CCC GCG GAG GAG GCG CCC TAT	480
Thr Ala Pro Val Pro Ser Ala Ala Gly Glu Pro Gly Glu Ala Pro Tyr	
CTG GTG AAG GTG CAC CAG GTG TGG GCG GTG AAA GCC GCG GCG TTTG AAG	528
Leu Val Lys Val His Gln Val Trp Ala Val Lys Ala Gly Gly Leu Lys	
AAG GAC TCG CTG CTC ACC GTG CGC CTG GCG ACC TGG GCG CAC CCC GCC	576
Lys Asp Ser Leu Leu Thr Val Arg Leu Gly Thr Trp Gly His Pro Ala	
TTC CCC TCC TGC GCG AGG CTC AAG GAG GAC AGC AGG TAC ATC TTC TTC	624
Phe Pro Ser Cys Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe	
ATG GAG CCC GAC GCC AAC AGC ACC AGC CGC GCG CCG GCC TTC CGA	672
Met Glu Pro Asp Ala Asn Ser Thr Ser Arg Ala Pro Ala Phe Arg	
GCC TCT TTC CCC CCT CTG GAG ACG GCG CCG AAC CTC AAG AAG GAG GTC	720
Ala Ser Phe Pro Pro Leu Glu Thr Gly Arg Asn Leu Lys Lys Glu Val	
AGC CGG GTG CTG TGC AAG CCG TGC G	745
Ser Arg Val Leu Cys Lys Arg Cys	

FIG. 32A

GGF2BPP5 Nucleotide Sequence & Deduced Protein Sequence

SEQ ID NO: 148:

AGTTTCCCCC	CCCAACTTGT	CGGAACCTCTG	GGCTCGCGCG	CAGGGCAGGA	GCGGAGCGGC	60
GGCGGCTGCC	CAGGCGATGC	GAGCGCGGGC	CGGACGGTAA	TCGCCCTCTCC	CTCCTCGGGC	120
TGCGAGCGCG	CCGACCCGAG	GCAGCGACAG	GAGCGGACCG	CGGCGGGAAC	CGAGGACTCC	180
CCAGCGGCGC	GCCAGCAGGA	GCCACCCCGC	GAGCGTGCGA	CCGGGACGGA	GCGCCCCGCCA	240
GTCCCAGGTG	GCCCCGACCG	CACGTTGCGT	CCCCGCGCTC	CCCGCCGCGC	ACAGGAGACG	300
CTCCCCCCCCA	CGCCGCGCGC	GCCTCGGCCC	GGTCGCTGGC	CCGCCCTCCAC	TCCGGGGGACA	360
AACTTTTCCC	GAAGCCGATC	CCAGCCCCTCG	GACCCAAACT	TGTCGCGCGT	CGCCTTCGCGC	420
GGGAGCCCGTC	CGCGCAGAGC	GTGCACTTCT	CGGGCGAG	ATG TCG GAG CGC AGA		475
				Met Ser Glu Arg Arg		
GAA GGC AAA	GGC AAG GGG	AAG GGC	GGC AAG AAG	GAC CGA GGC	TCC GGG	523
Glu Gly Lys	Gly Lys Gly	Lys Gly	Lys Gly	Asp Arg Gly	Ser Gly	
AAG AAG CCC	GTG CCC	GCG GCT	GGC GGC	CCA GCC	TTG CCT CCC	571
Lys Lys Pro	Val Pro	Ala Ala	Gly Gly	Pro Ser	Ala Leu Pro	
CGC TTG AAA	GAG ATG	AAG ATG	CAG GAG	TCT GTG	GCA GGT	619
Arg Leu Lys	Glu Met	Lys Ser	Gln Glu	Ser Val	Ala Gly Ser	
GTG CTT CGG	TGC GAG	ACC AGT	TCT GAA	TAC TCC	TCT CTC	667
Val Leu Arg	Cys Glu	Thr Ser	Ser Ser	Glu Tyr	Ser Leu Lys	
TGG TTC AAG	AAT GGG	AGT GAA	TTA AGC	CGA AAG	AAC CCA	715
Trp Phe Lys	Asn Gly	Ser Glu	Leu Ser	Arg Lys	Asn Lys	
ATC AAG ATA	CAG AAA	AGG CCG	GGG AAG	TCA GAA	CTT CGC	763
Ile Lys Ile	Gln Lys	Arg Pro	Gly Lys	Ser Glu	Leu Arg	
GCG TCA CTG	GCT GAT	TCT GGA	GAA TAT	ATG TGC	AAA GTG	811
Ala Ser Leu	Ala Asp	Ser Ser	Gly Glu	Tyr Met	Cys Lys	
					Val Ile Ser	
					AGC AAA	
					Lys Lys	

FIG. 32B

GGF2BPPP5 Nucleotide Sequence & Deduced Protein Sequence

CTA GGA AAT GAC AGT GCC TCT GCC AAC ATC ACC ATT GTG GAG TCA AAC Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile Val Glu Ser Asn	859
GAG ATC ACC ACT GGC ATG CCA GCC TCA ACT GAG ACA GCG TAT GTG TCT Glu Ile Thr Thr Gly Met Pro Ala Ser Thr Glu Thr Ala Tyr Val Ser	907
TCA GAG TCT CCC ATT AGA ATA TCA GTA TCA ACA GAA GGA ACA AAT ACT Ser Glu Ser Pro Ile Arg Ile Ser Val Ser Thr Glu Gly Thr Asn Thr	955
TCT TCA TCC ACA TCC ACA TCT ACA GCT GGG ACA AGC CAT CTT GTC AAG Ser Ser Thr Thr Ser Thr Ser Thr Ala Gly Thr Ser His Leu Val Lys	1003
TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT GGA GGC GAG TGC TTC Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys Phe	1051
ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC TAT TGC AAG TGC CCA Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys Pro	1099
AAT GAG TTT ACT GGT GAT CGC TGC CAA AAC TAC GTA ATG GCC AGC TTC Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe	1147
TAC AGT ACG TCC ACT CCC TTT CTG TCT CTG CCT GAA TAGGCGCATG Tyr Ser Thr Ser Thr Pro Phe Leu Ser Leu Pro Glu	1193
CTCAGTCGGT GCCGCTTTCT TGTGCGCGCA TCTCCCTCTCA GATTCAACCT AGAGCTAGAT	1253
GCGTTTACC AGGTCTAACA TTGACTGCCT CTGCCCTGTCG CATGAGAAC TTAACACAAG	1313
CGATTGTATG ACTTCCTCTG TCCGTGACTA GTGGGCTCTG AGCTACTCGT AGGTGCGTAA	1373
GGCTCCAGTG TTTCTGAAAT TGATCTTGAA TTACTGTGAT ACGACATGAT AGTCCCTCTC	1433
ACCCAGTGCA ATGACAATAA AGGCCTTGAA AAGTCTCACT TTTATTGAGA AAATAAAAAT	1493
CGTCCACGG GACAGTCCCT CTTCCTTATA AAATGACCCCT ATCCTTGAAA AGGAGGTGTG	1553
TTAAGTTGTA ACCAGTACAC ACTTGAAATG ATGGTAAAGTT CGCTTCGGTT CAGAATGTGT	1613
TCTTTCTGAC AAATAAACAG AATAAAAAAA AAAAAAAAAA A	1654

GGF2BPP2 Nucleotide Sequence & Deduced Protein Sequence

[illegible]

FIG. 33B

GGF2BPP2 Nucleotide Sequence & Deduced Protein Sequence

ATC ACC ATT GTG GAG TCA AAC GCC ACA TCC ACA TCT ACA GCT GGG ACA Ile Thr Ile Val Glu Ser Asn Ala Thr Ser Thr Ser Thr Ala Gly Thr	576
AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	624
GGA GGC GAG TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	672
TTG TGC AAG TGC CAA CCT GGA TTC ACT GGA GCG AGA TGT ACT GAG AAT Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn	720
GTG CCC ATG AAA GTC CAA ACC CAA GAA AAG TGC CCA AAT GAG TTT ACT Val Pro Met Lys Val Gln Thr Gln Glu Lys Cys Pro Asn Glu Phe Thr	768
GGT GAT CGC TGC CAA AAC TAC GTA ATG GCC AGC TTC TAC AGT ACG TCC Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Ser Thr Ser	816
ACT CCC TTT CTG TCT CTG CCT GAA TAGCGCATCT CAGTCGGTGC CGCTTTCTTG Thr Pro Phe Leu Ser Leu Pro Glu	870
TTGCCGCATC TCCCCTCAGA TTCNCCTAG AGCTAGATGC GTTTTACCAG GTCTAACATT	930
GACTGCCCTCT GCCTGTGCGCA TGAGAACATT AACACAAGCG ATTGTATGAC TTCCTCTGTC	990
CGTGACTAGT GGGCTCTGAG CTACTCGTAG GTGCGTAAGG CTCCAGTGT TCTGAAATTG	1050
ATCTTGAATT ACTGTGATAC GACATGATAG TCCCTCTCAC CCAGTGCAAT GACAATAAAG	1110
GCCTTGAAAA GTCAAAAAAA AAAAAAAAAA	1140

FIG. 34A

GGF2BPP4 Nucleotide Sequence & Deduced Protein Sequence

SEQ ID NO: 150:

G AAG TCA GAA CTT CGC ATT AGC AAA GCG TCA CTG GCT GAT TCT GGA GAA Lys Ser Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu	49
TAT ATG TGC AAA GTG ATC AGC AAA CTA GGA AAT GAC AGT GCC TCT GCC Tyr Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala	97
AAC ATC ACC ATT GTG GAG TCA AAC GCC ACA TCC ACA TCT ACA GCT GGG Asn Ile Thr Ile Val Glu Ser Asn Ala Thr Ser Thr Ser Thr Ala Gly	145
ACA AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG Thr Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val	193
AAT GGA GGC GAC TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA Asn Gly Gly Asp Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg	241
TAC TTG TGC AAG TGC CAA CCT GGA TTC ACT GGA GCG AGA TGT ACT GAG Tyr Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu	289
AAT GTG CCC ATG AAA GTC CAA ACC CAA GAA AAA GCG GAG CTC TAC Asn Val Pro Met Lys Val Lys Val Gln Thr Gln Glu Lys Ala Glu Leu Tyr	337
CAG AAG AGA GTG CTC ACC ATT ACC GGC ATT TGC ATC GCG CTG CTC GTG Gln Lys Arg Val Leu Thr Ile Thr Gly Ile Cys Ile Ala Leu Leu Val	385
GTT GGC ATC ATG TGT GTG GTG GTC TAC TGC AAA ACC AAG AAA CAA CCG Val Gly Ile Met Cys Val Val Val Tyr Cys Lys Thr Lys Lys Gln Arg	433
AAA AAG CTT CAT GAC CCG CTT CCG CAG AGC CTT CCG TCT GAA AGA AAC Lys Lys Leu His Asp Arg Leu Arg Gln Ser Leu Arg Ser Glu Arg Asn	481
ACC ATG ATG AAC GTA GCC AAC GGG CCC CAC CAC CCC AAT CCG CCC CCC Thr Met Met Asn Val Ala Asn Gly Pro His His Pro Asn Pro Pro Pro	529
GAG AAC GTG CAG CTG GTG AAT CAA TAC GTA TCT AAA AAT GTC ATC TCT Glu Asn Val Gln Leu Val Asn Gln Tyr Val Ser Lys Asn Val Ile Ser	577

FIG. 34B

GGF2BPP4 Nucleotide Sequence & Deduced Protein Sequence

AGC GAG CAT ATT GTT GAG AGA GAG GCG GAG AGC TCT TTT TCC ACC AGT Ser Glu His Ile Val Glu Arg Glu Ala Glu Ser Ser Phe Ser Thr Ser	625
CAC TAC ACT TCG ACA GCT CAT CAT CAT TCC ACT ACT ACT CAG ACT CCC His Tyr Thr Ser Thr Ala His His Ser Thr Thr Val Thr Gln Thr Pro	673
AGT CAC AGC TGG AGC AAT GGA CAC ACT GAA AGC ATC ATT TCG GAA AGC Ser His Ser Trp Ser Ser Asn Gly His Thr Glu Ser Ile Ser Glu Ser	721
CAC TCT GTC ATC GTG ATG TCA TCC GTA GAA AAC AGT AGG CAC AGC AGC His Ser Val Ile Val Met Ser Ser Ser Val Glu Asn Ser Arg His Ser Ser	769
CCG ACT GGG GGC CCG AGA GGA CGT CTC AAT GGC TTG GGA GGC CCT CGT Pro Thr Gly Gly Pro Arg Gly Arg Leu Asn Gly Leu Gly Gly Pro Arg	817
GAA TGT AAC AGC TTC CTC AGG CAT GCC AGA GAA ACC CCT GAC TCC TAC Glu Cys Asn Ser Phe Leu Arg His Ala Arg Glu Thr Pro Asp Ser Tyr	865
CGA GAC TCT CCT CAT AGT GAA AGA CAT AAC CTT ATA GCT GAG CTA AGG Arg Asp Ser Pro His Ser Glu Arg His Asn Leu Ile Ala Glu Leu Arg	913
AGA AAC AAG GCC CAC AGA TCC AAA TGC ATG CAG ATC CAG CTT TCC GCA Arg Asn Lys Ala His Arg Ser Lys Cys Met Gln Ile Gln Leu Ser Ala	961
ACT CAT CTT AGA GCT TCT TCC ATT CCC CAT TGG GCT TCA TTC TCT AAG Thr His Leu Arg Ala Ser Ser Ile Pro His Trp Ala Ser Phe Ser Lys	1009
ACC CCT TGG CCT TTA GGA AGG TAT GTA TCA GCA ATG ACC ACC CCG GCT Thr Pro Trp Pro Leu Gly Arg Tyr Val Ser Ala Met Thr Thr Pro Ala	1057
CGT ATG TCA CCT GTA GAT TTC CAC ACG CCA AGC TCC CCC AAG TCA CCC Arg Met Ser Pro Val Asp Phe His Thr Pro Ser Ser Pro Lys Ser Pro	1105
CCT TCG GAA ATG TCC CCG CCC GTG TCC AGC ACG ACG GTC TCC ATG CCC Pro Ser Glu Met Ser Pro Pro Val Ser Thr Thr Val Ser Met Pro	1153

FIG. 34C

GGF2BPP4 Nucleotide Sequence & Deduced Protein Sequence

TCC ATG GCG GTC AGT CCC TTC GTG GAA GAG GAG AGA CCC CTG CTC CTT Ser Met Ala Val Ser Pro Phe Val Glu Glu Arg Pro Leu Leu Leu	1201
GTG ACG CCA CCA CCG CTG CCG GAG AAG TAT GAC CAC CAC GCC CAG CAA Val Thr Pro Pro Arg Leu Arg Glu Lys Tyr Asp His His Ala Gln Gln	1249
TTC AAC TCG TTC CAC TGC AAC CCC GCG CAT GAG AGC AAC AGC CTG CCC Phe Asn Ser Phe His Cys Asn Pro Ala His Glu Ser Asn Ser Leu Pro	1297
CCC AGC CCC TTG AGG ATA GTG GAG GAT GAG GAA TAT GAA ACG ACC CAG Pro Ser Pro Leu Arg Ile Val Glu Asp Glu Glu Tyr Glu Thr Thr Gln	1345
GAG TAC GAA CCA GCT CAA GAG CCG GTT AAG AAA CTC ACC AAC AGC AGC Glu Tyr Glu Pro Ala Gln Glu Pro Val Lys Lys Leu Thr Asn Ser Ser	1393
CGG CGG GCC AAA AGA ACC AAG CCC AAT GGT CAC ATT GCC CAC AGG TTG Arg Arg Ala Lys Arg Thr Lys Pro Asn Gly His Ile Ala His Arg Leu	1441
GAA ATG GAC AAC AAC ACA GGC GCT GAC AGC AGT AAC TCA GAG AGC GAA Glu Met Asp Asn Asn Thr Gly Ala Asp Ser Ser Asn Ser Glu Ser Glu	1489
ACA GAG GAT GAA AGA GTA GGA GAA GAT ACG CCT TTC CTG GCC ATA CAG Thr Glu Asp Glu Arg Val Gly Glu Asp Thr Pro Phe Leu Ala Ile Gln	1537
AAC CCC CTG GCA GCC AGT CTC GAG GCG GCC CCT GCC TTC CGC CTG GTC Asn Pro Leu Ala Ala Ser Leu Glu Glu Ala Pro Ala Phe Arg Leu Val	1585
GAC AGC AGG ACT AAC CCA ACA GGC GGC TTC TCT CCG CAG GAA GAA TTG Asp Ser Arg Thr Asn Pro Thr Gly Gly Phe Ser Pro Gln Glu Glu Leu	1633
CAG GCC AGG CTC TCC GGT GTA ATC GCT AAC CAA GAC CCT ATC GCT GTC Gln Ala Arg Leu Ser Gly Val Ile Ala Asn Gln Asp Pro Ile Ala Val	1681
TAAACCCGAA ATACACCCCAT AGATTCACCT GTAAACCTTT ATTTTATATA ATAAAGTATT	1741
CCACCTTAAA TTAAACAAAA AAA	1764

FIG. 35

GGF2bpp5	(SEQ ID NO: 151)	*		*	*	*
			KCAEKEKTF	CVNGGECF	MVKDLSN	PSRYLCKC
			PNFTGDR	CQNYVMAS	FY	
GGF2bpp4	(SEQ ID NO: 152)		KCAEKEKTF	CVNGGDCF	MVKDLSN	PSRYLCKC
			QPGFTGAR	CTENVP	PMKVQ	
hEGF	(SEQ ID NO: 153)		ECLRKYKDF	CIH-GECKY	VVELRAPS	---CKCQ
						QEQYFGER
						CGEKS
						SNKTHS

FIG. 36
200 kDa Tyrosine Phosphorylation
Compared with Mitogenic Activity

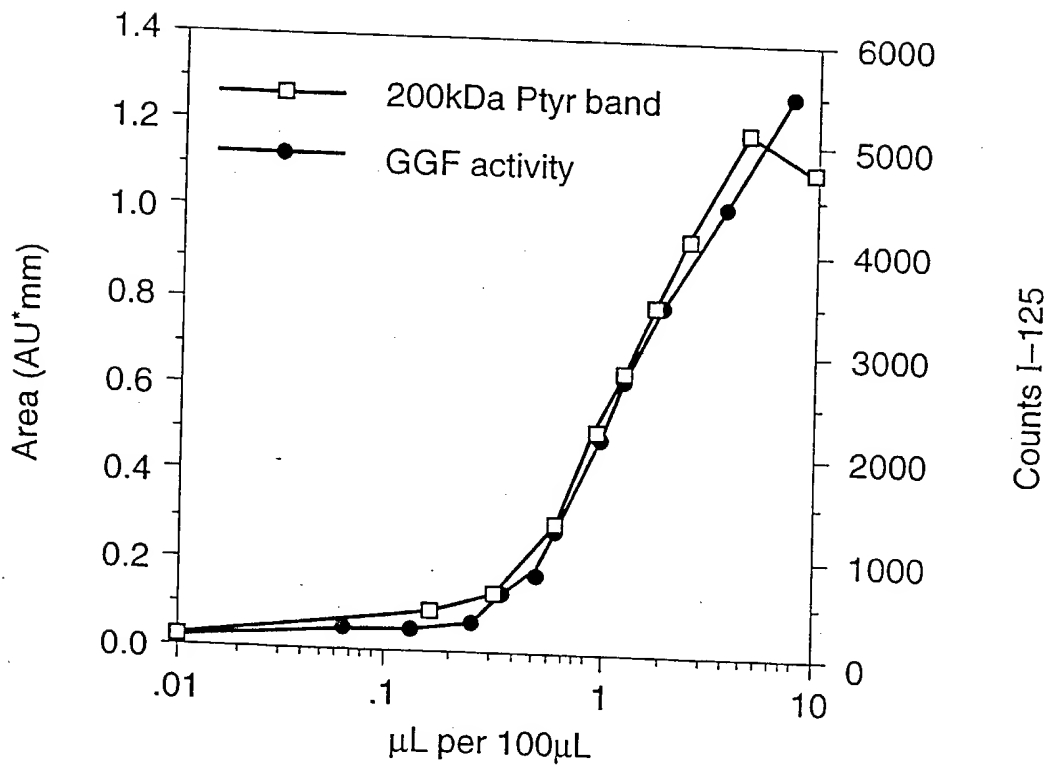


FIG. 37A GGF/Heregulin Splicing Variants

F-B-A'

F-B-A-C-C/D-D
 F-B-A-C-C/D-H
 F-B-A-C-C/D-H-L
 F-B-A-C-C/D-H-K-L
 F-B-A-C-C/D-D'-H
 F-B-A-C-C/D-D'-H-L
 F-B-A-C-C/D-D'-H-K-L
 F-B-A-C-C/D'-D
 F-B-A-C-C/D'-H
 F-B-A-C-C/D'-H-L
 F-B-A-C-C/D'-H-K-L
 F-B-A-C-C/D'-D'-H
 F-B-A-C-C/D'-D'-H-L
 F-B-A-C-C/D'-D'-H-K-L
 F-B-A-C-C/D-C/D'-D
 F-B-A-C-C/D-C/D'-H
 F-B-A-C-C/D-C/D'-H-L
 F-B-A-C-C/D-C/D'-H-K-L
 F-B-A-C-C/D-C/D'-D'-H
 F-B-A-C-C/D-C/D'-D'-H-L
 F-B-A-C-C/D-C/D'-D'-H-K-L

F-B-A-G-C-C/D-D
 F-B-A-G-C-C/D-H
 F-B-A-G-C-C/D-H-L
 F-B-A-G-C-C/D-H-K-L
 F-B-A-G-C-C/D-D'-H
 F-B-A-G-C-C/D-D'-H-L
 F-B-A-G-C-C/D-D'-H-K-L
 F-B-A-G-C-C/D'-D
 F-B-A-G-C-C/D'-H
 F-B-A-G-C-C/D'-H-L
 F-B-A-G-C-C/D'-H-K-L
 F-B-A-G-C-C/D'-D'-H
 F-B-A-G-C-C/D'-D'-H-L
 F-B-A-G-C-C/D'-D'-H-K-L
 F-B-A-G-C-C/D-C/D'-D
 F-B-A-G-C-C/D-C/D'-H
 F-B-A-G-C-C/D-C/D'-H-L
 F-B-A-G-C-C/D-C/D'-H-K-L
 F-B-A-G-C-C/D-C/D'-D'-H
 F-B-A-G-C-C/D-C/D'-D'-H-L
 F-B-A-G-C-C/D-C/D'-D'-H-K-L

F-E-B-A'

F-E-B-A-C-C/D-D
 F-E-B-A-C-C/D-H
 F-E-B-A-C-C/D-H-L
 F-E-B-A-C-C/D-H-K-L
 F-E-B-A-C-C/D-D'-H
 F-E-B-A-C-C/D-D'-H-L
 F-E-B-A-C-C/D-D'-H-K-L
 F-E-B-A-C-C/D'-D
 F-E-B-A-C-C/D'-H
 F-E-B-A-C-C/D'-H-L
 F-E-B-A-C-C/D'-H-K-L
 F-E-B-A-C-C/D'-D'-H
 F-E-B-A-C-C/D'-D'-H-L
 F-E-B-A-C-C/D'-D'-H-K-L
 F-E-B-A-C-C/D-C/D'-D
 F-E-B-A-C-C/D-C/D'-H
 F-E-B-A-C-C/D-C/D'-H-L
 F-E-B-A-C-C/D-C/D'-H-K-L
 F-E-B-A-C-C/D-C/D'-D'-H
 F-E-B-A-C-C/D-C/D'-D'-H-L
 F-E-B-A-C-C/D-C/D'-D'-H-K-L

F-E-B-A-G-C-C/D-D
 F-E-B-A-G-C-C/D-H
 F-E-B-A-G-C-C/D-H-L
 F-E-B-A-G-C-C/D-H-K-L
 F-E-B-A-G-C-C/D-D'-H
 F-E-B-A-G-C-C/D-D'-H-L
 F-E-B-A-G-C-C/D-D'-H-K-L
 F-E-B-A-G-C-C/D'-D
 F-E-B-A-G-C-C/D'-H
 F-E-B-A-G-C-C/D'-H-L
 F-E-B-A-G-C-C/D'-H-K-L
 F-E-B-A-G-C-C/D'-D'-H
 F-E-B-A-G-C-C/D'-D'-H-L
 F-E-B-A-G-C-C/D'-D'-H-K-L
 F-E-B-A-G-C-C/D-C/D'-D
 F-E-B-A-G-C-C/D-C/D'-H
 F-E-B-A-G-C-C/D-C/D'-H-L
 F-E-B-A-G-C-C/D-C/D'-H-K-L
 F-E-B-A-G-C-C/D-C/D'-D'-H
 F-E-B-A-G-C-C/D-C/D'-D'-H-L
 F-E-B-A-G-C-C/D-C/D'-D'-H-K-L

FIG. 37B
GGF/Heregulin
Splicing Variants

E-B-A'

E-B-A-C-C/D-D

E-B-A-C-C/D-H

E-B-A-C-C/D-H-L

E-B-A-C-C/D-H-K-L

E-B-A-C-C/D-D'-H

E-B-A-C-C/D-D'-H-L

E-B-A-C-C/D-D'-H-K-L

E-B-A-C-C/D'-D

E-B-A-C-C/D'-H

E-B-A-C-C/D'-H-L

E-B-A-C-C/D'-H-K-L

E-B-A-C-C/D'-D'-H

E-B-A-C-C/D'-D'-H-L

E-B-A-C-C/D'-D'-H-K-L

E-B-A-C-C/D-C/D'-D

E-B-A-C-C/D-C/D'-H

E-B-A-C-C/D-C/D'-H-L

E-B-A-C-C/D-C/D'-H-K-L

E-B-A-C-C/D-C/D'-D'-H

E-B-A-C-C/D-C/D'-D'-H-L

E-B-A-C-C/D-C/D'-D'-H-K-L

E-B-A-G-C-C/D-D

E-B-A-G-C-C/D-H

E-B-A-G-C-C/D-H-L

E-B-A-G-C-C/D-H-K-L

E-B-A-G-C-C/D-D'-H

E-B-A-G-C-C/D-D'-H-L

E-B-A-G-C-C/D-D'-H-K-L

E-B-A-G-C-C/D'-D

E-B-A-G-C-C/D'-H

E-B-A-G-C-C/D'-H-L

E-B-A-G-C-C/D'-H-K-L

E-B-A-G-C-C/D'-D'-H

E-B-A-G-C-C/D'-D'-H-L

E-B-A-G-C-C/D'-D'-H-K-L

E-B-A-G-C-C/D-C/D'-D

E-B-A-G-C-C/D-C/D'-H

E-B-A-G-C-C/D-C/D'-H-L

E-B-A-G-C-C/D-C/D'-H-K-L

E-B-A-G-C-C/D-C/D'-D'-H

E-B-A-G-C-C/D-C/D'-D'-H-L

E-B-A-G-C-C/D-C/D'-D'-H-K-L

FIG. 38

EGFL1

SEQ ID NO: 154:

AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT	48
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	
GGA GGC GAG TGC TTC ATG ATG AAA GAC CTT TCA AAT CCC TCA AGA TAC	96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
TTG TGC AAG TGC CCA AAT GAG TTT ACT GGT GAT CGC TGC CAA AAC TAC	144
Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr	
GTA ATG GCC AGC TTC TAC AGT ACG TCC ACT CCC TTT CTG TCT CTG CCT	192
Val Met Ala Ser Phe Tyr Ser Thr Ser Thr Pro Phe Leu Ser Leu Pro	
GAA TAG	198
Glu	

FIG. 39 **EGFL2**

SEQ ID NO: 155:

AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT	48
Ser His Leu Val Lys Cys Ala Glu Lys Thr Phe Cys Val Asn	
GGA GGC GAG TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC	96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
TTG TGC AAG TGC CAA CCT GGA TTC ACT GGA GCG AGA TGT ACT GAG AAT	144
Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn	
GTG CCC ATG AAA GTC CAA ACC CAA GAA AAA GCG GAG GAG CTC TAC TAA	192
Val Pro Met Lys Val Gln Thr Gln Glu Lys Ala Glu Leu Tyr	

FIG. 40

EGFL3

59/78

SEQ ID NO: 156:

AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT	48
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	
GGA GGC GAG TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC	96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
TTG TGC AAG TGC CCA AAT GAG TTT ACT GGT GAT CGC TGC CAA AAC TAC	144
Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr	
GTA ATG GCC AGC TTC TAC AAA GCG GAG GAG CTC TAC TAA	183
Val Met Ala Ser Phe Tyr Lys Ala Glu Glu Leu Tyr	

FIG. 41

EGFL4

SEQ ID NO: 157:

AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT	48
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	
GGA GGC GAG TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC	96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
TTG TGC AAG TGC CCA AAT GAG TTT ACT GGT GAT CGC TGC CAA AAC TAC	144
Leu Cys Lys Cys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr	
GTA ATG GCC AGC TTC TAC AAG CAT CTT GGG ATT GAA TTT ATG GAG AAA	192
Val Met Ala Ser Phe Tyr Lys His Leu Gly Ile Glu Phe Met Glu Lys	
GCG GAG GAG CTC TAC TAA	210
Ala Glu Glu Leu Tyr	

FIG. 42

EGFL5

SEQ ID NO: 158:

AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT	48
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	
GCA GGC GAG TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC	96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
TTG TGC AAG TGC CAA CCT GGA TTC ACT GGA GCG AGA TGT ACT GAG AAT	144
Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn	
GTG CCC ATG AAA GTC CAA ACC CAA GAA AAG TGC CCA AAT GAG TTT ACT	192
Val Pro Met Lys Val Gln Thr Gln Thr Glu Lys Cys Pro Asn Glu Phe Thr	
GGT GAT CGC TGC CAA AAC TAC GTA ATG GCC AGC TTC TAC AGT ACG TCC	240
Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Ser Thr Ser	
ACT CCC TTT CTG TCT CTG CCT GAA TAG	267
Thr Pro Phe Leu Ser Leu Pro Glu	

FIG. 43

EGFL6

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SEQ ID NO: 159:

AGC CAT CTT GTC AAG TGT GCA GAG AAG GAG AAA ACT TTC TGT GTG AAT 48
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn

GGA GGC GAG TGC TTC ATG GTG AAA GAC CTT TCA AAT CCC TCA AGA TAC 96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr

TTG TGC AAG TGC CAA CCT GGA TTC ACT GGA GCG AGA TGT ACT GAG AAT 144
Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn

GTG CCC ATG AAA GTC CAA ACC CAA GAA AAG TGC CCA AAT GAG TTT ACT 192
Val Pro Met Lys Val Gln Thr Gln Glu Lys Cys Pro Asn Glu Phe Thr

GGT GAT CGC TGC CAA AAC TAC GTA ATG GCC AGC TTC TAC AAA GCG GAG 240
Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Lys Ala Glu

GAG CTC TAC TAA 252
Glu Leu Tyr

FIG. 44
GGF2HBS5

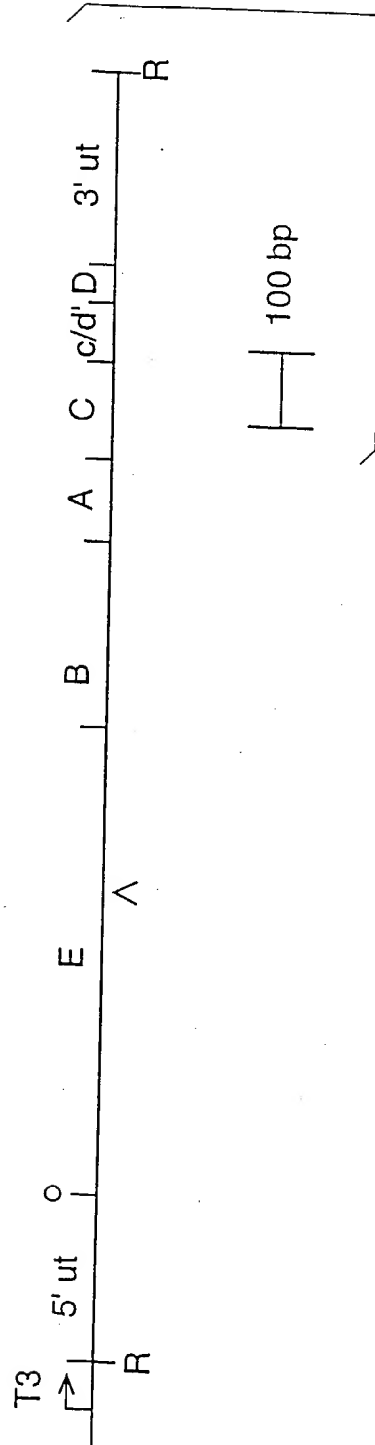


FIG. 45A

Nucleotide Sequence & Deduced Acid Sequence of GGF2HBS5

SEQ ID NO: 21:

GGAAATCCCTT TTTTTTTTTT TTTTTTCTT NNTTTTTTTT TGCCCTTATA CCTCTTCGCC	60
TTTCTGTGGT TCCATCCACT TCTTCCCCCT CCTCCTCCCA TAAACAACATC TCCTACCCCT	120
GCACCCCCAA TAAATAAATA AAAGGAGGAG GGCAAGGGGG GAGGAGGAGG AGTGGTGCTG	180
CGAGGGGAAG GAAAAGGGAG GCAGCGCGAG AAGAGCCGGG CAGAGTCCGA ACCGACAGCC	240
AGAAGCCCGC ACGCACCTCG CACC ATG AGA TGG CGA CGC GCC CCG CGC CGC	291
Met Arg Trp Arg Arg Ala Pro Arg Arg	
TCC GGG CGT CCC GGC CCC CGG GCC CAG CGC CCC GGC TCC GCC GCC CGC CGC	339
Ser Gly Arg Pro Gly Pro Arg Ala Gln Arg Pro Gly Ser Ala Ala Arg	
TCG TCG CCG CCG CTG CTG CCG CCA CTA CTG CTG CTG CTG GGG ACC	387
Ser Ser Pro Pro Leu Pro Leu Pro Leu Leu Leu Leu Leu Thr Val	
Val Cys Leu Leu Leu Thr Val	
GGF-II 09	
GCG GCC CTG GCG CCG GCG GCG GCG AAC GAG GCG GCT CCC GCG	435
Ala Ala Leu Ala Pro Gly Ala Ala Ala Gly Asn Glu Ala Ala Pro Ala	
Ala Ala Leu Pro Pro	
GGG GCC TCG GTG TGC TAC TCG TCC CCG CCC AGC GTG GGA TCG GTG CAG	483
Gly Ala Ser Val Cys Tyr Ser Ser Pro Pro Ser Val Gly Ser Val Gln	
Ala Ser Pro Val Ser Val Gly Ser Val Gln	
GGF-II 08	
GAG CTA GCT CAG CGC GCC GCG GTG ATC GAG GGA AAG GTG CAC CCG	531
Glu Leu Ala Gln Arg Ala Ala Val Val Ile Glu Gly Lys Val His Pro	
Glu Leu Val Gln Arg Trp Phe Val Val Ile Glu Gly Lys	
GGF-II 04	

FIG. 45B

Nucleotide Sequence & Deduced Acid Sequence of GGF2HBS5

CAG CGG CCG CAG CAG GGG GCA CTC GAC AGG AAG GCG GCG GCG GCG GCG	579
Gln Arg Arg Gln Gln Gly Ala Leu Asp Arg Lys Ala Ala Ala Ala Ala	
GGC GAG GCA GGG GCG TGG GGC GGC GAT CGC GAG CCG CCA GCC GCG GGC	627
Gly Glu Ala Ala Gly Ala Trp Gly Gly Asp Arg Glu Pro Pro Ala Ala Gly	
CCA CGG GCG CTG GGG CCG CCC GCG GAG GAG CCG CTG CTC GCC GCC AAC	675
Pro Arg Ala Leu Gly Pro Pro Ala Glu Glu Pro Leu Leu Ala Ala Asn	
GGG ACC GTG CCC TCT TGG CCC ACC GCC CCG GTG CCC AGC GCC GGC GAG	723
Gly Thr Val Pro Ser Trp Pro Thr Ala Pro Val Pro Ser Ala Gly Glu	
CCC GGG GAG GAG CCG CCC TAT CTG GTG AAG GTG CAC CAG GTG TGG GCG	771
Pro Gly Glu Glu Ala Pro Tyr Leu Val Lys Val His Gln Val Trp Ala	
Lys Val His Glu Val Trp Ala	
GGF-II 01 & GGF-II 11	
GTG AAA GCC GGG GCG TTG AAG AAG GAC TCG CTG CTC ACC GTG CCG CTG	819
Val Lys Ala Gly Gly Leu Lys Lys Asp Ser Leu Leu Thr Val Arg Leu	
Ala Lys	
GGG ACC TGG GGC CAC CCC GCG TTC CCC TCC TGC GGG AGG CTC AAG GAG	867
Gly Thr Trp Gly His Pro Ala Phe Pro Ser Cys Gly Arg Leu Lys Glu	
Gly Ala Trp Gly Pro Pro Ala Phe Pro Val Xaa Tyr	
GGF-II 03	
GAC AGC AGG TAC ATC TTC TTC ATG GAG CCC GAC GCC AAC AGC ACC AGC	915
Asp Ser Arg Tyr Ile Phe Phe Met Glu Pro Asp Ala Asn Ser Thr Ser	
Tyr Ile Phe Phe Met Glu Pro Glu Ala Xaa Ser Ser Gly	
GGF-II 02	

FIG. 45C

Nucleotide Sequence & Deduced Acid Sequence of GGF2HBS5

CGC GCG CCG GCC GCC TTC CGA GCC TCT TTC CCC CCT CTG GAG ACG GGC Arg Ala Pro Ala Ala Phe Arg Ala Ser Phe Pro Pro Leu Glu Thr Gly	963
CGG AAC CTC AAG AAG GAG GTC AGC CGG GTG CTG TGC AAG CCG TGC GCC Arg Asn Leu Lys Lys Glu Val Ser Arg Val Leu Cys Lys Arg Cys Ala	1011
TTG CCT CCC CAA TTG AAA GAG ATG AAA AGC CAG GAA TCG GCT GCA GGT Leu Pro Pro Gln Leu Lys Glu Met Lys Ser Gln Glu Ser Ala Ala Gly	1059
TCC AAA CTA GTC CTT CGG TGT GAA ACC AGT TCT GAA TAC TCC TCT CTC Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser Ser Leu Leu Val Leu Arg	1107
GGF-II 06	
AGA TTC AAG TGG TTC AAG AAT GGG AAT GAA TTG AAT CGA AAA AAC AAA Arg Phe Lys Lys Trp Phe Lys Lys Asn Gly Asn Glu Leu Asn Arg Lys Asn Lys	1155
CCA CAA AAT ATC AAG ATA CAA AAA AAG CCA GGG AAG TCA GAA CTT CGC Pro Gln Asn Ile Lys Ile Gln Lys Lys Pro Gly Lys Ser Glu Leu Arg	1203
ATT AAC AAA GCA TCA CTG GCT GAT TCT GGA GAG TAT ATG TGC AAA GTG Ile Asn Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys Val Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Xaa Lyx	1251
GGF-II 12	
ATC AGC AAA TTA GGA AAT GAC AGT GCC TCT GCC AAT ATC ACC ATC GTG Ile Ser Lys Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile Val	1299
GAA TCA AAC GCT ACA TCT ACA TCC ACC ACT GGG ACA AGC CAT CTT GTA Glu Ser Asn Ala Thr Ser Thr Ser Thr Gly Thr Ser His Leu Val	1347

FIG. 45D

Nucleotide Sequence & Deduced Acid Sequence of GGF2HBS5

AAA TGT GCG GAG AAG GAG AAA ACT TTC TGT GTG AAT GGA GGG GAG TGC 1395
 Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys
 TTC ATG GTG AAA GAC CTT TCA AAC CCC TCG AGA TAC TTG TGC AAG TGC 1443
 Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys
 CCA AAT GAG TTT ACT GGT GAT CGC TGC CAA AAC TAC GTA ATG GCC AGC 1491
 Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser
 TTC TAC AGT ACG TCC ACT CCC TTT CTG TCT CTG CCT GAA 1530
 Phe Tyr Ser Thr Ser Thr Pro Phe Leu Ser Leu Pro Glu
 TAGGAGCATG CTCAGTTGGT GCTGCTTTCT TGTTGCTGCA TCTCCCCCTCA GATCCACCT 1590
 AGAGCTAGAT GTGTCTTACC AGATCTAATA TTGACTGCCT CTGCCCTGTCG CATGAGAACA 1650
 TTAACAAAAG CAATTGTATT ACTTCCTCTG TTCGCGACTA GTTGGCTCTG AGATACTAAT 1710
 AGGTGTGTGA GGCTCCGGAT GTTCTTGGA TTGATATATGA ATGATGTGAT ACAAATTGAT 1770
 AGTCAATATC AAGCAGTGAA ATATGATAAT AAAGGCATTT CAAAGTCTCA CTTTATTGA 1830
 TAAAATAAAA ATCATTTCTAC TGAACAGTCC ATCTTCTTTA TACAATGACC ACATCCTGAA 1890
 AAGGGTGTG CTAAGCTGTA ACCGATATGC ACTTGAAATG ATGGTAAGTT AATTTTGATT 1950
 CAGAAATGTGT TATTTGTCAC AAATAAACAT AATAAAAGGA AAAAAAAAAA 2003

FIG. 46
Schwann Cell Proliferation Assay

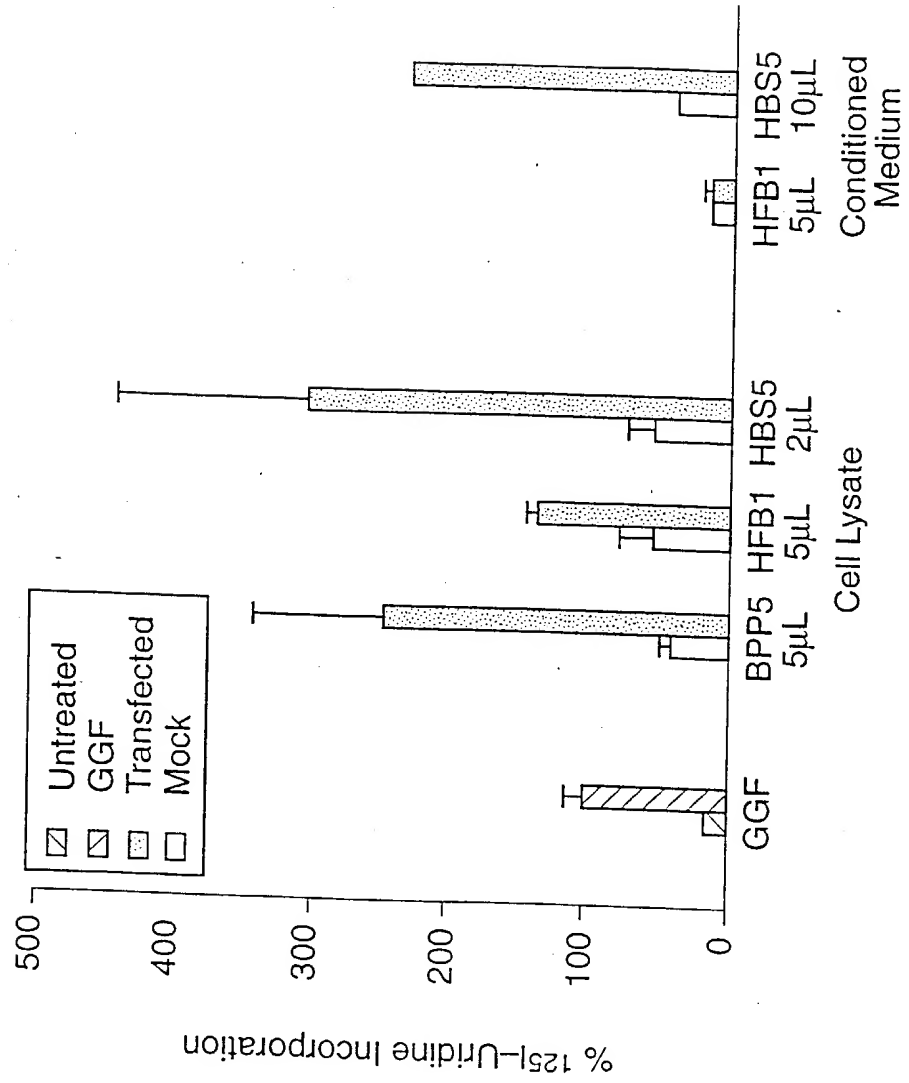


FIG. 47

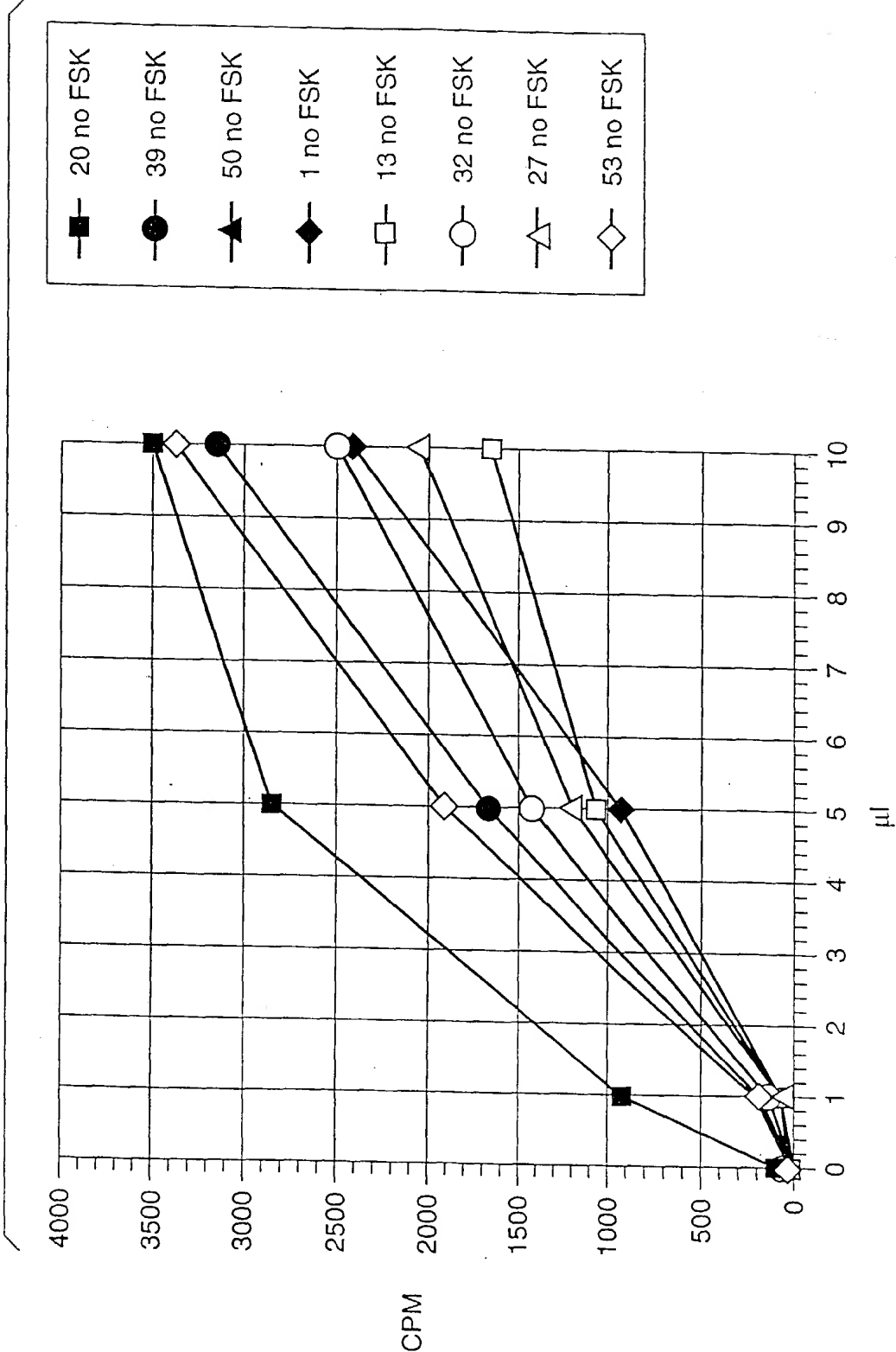


FIG. 49

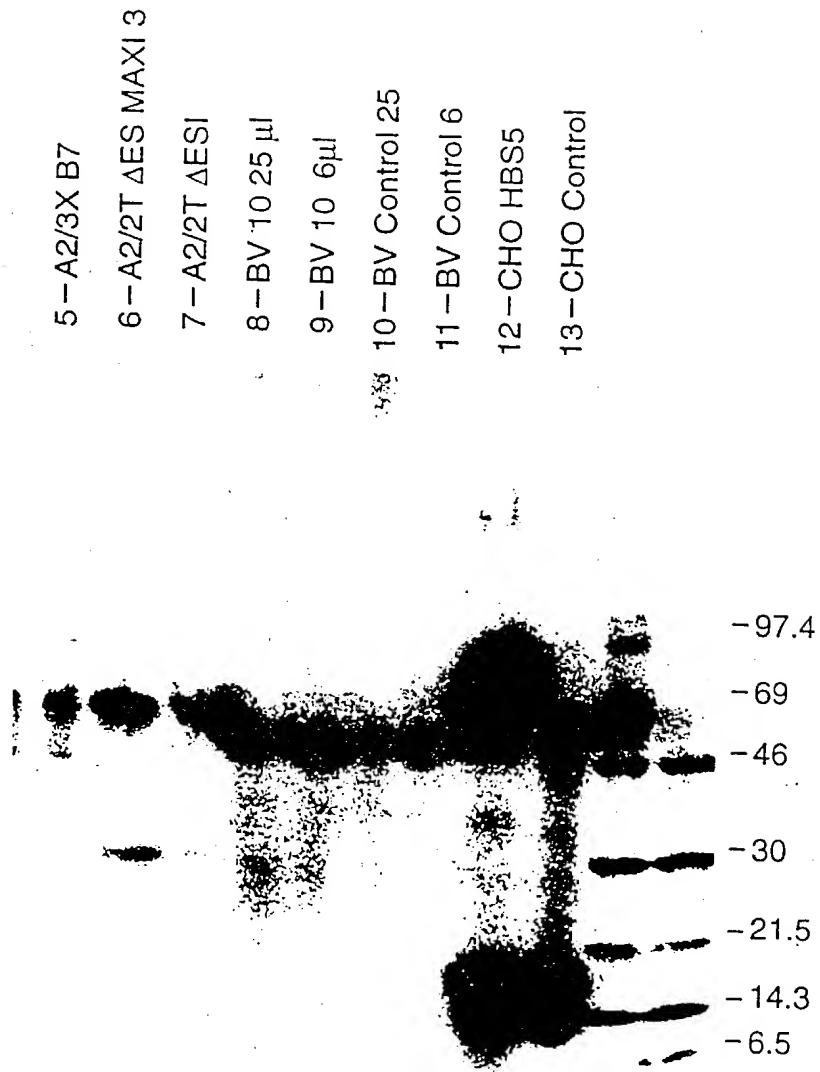


FIG. 50A

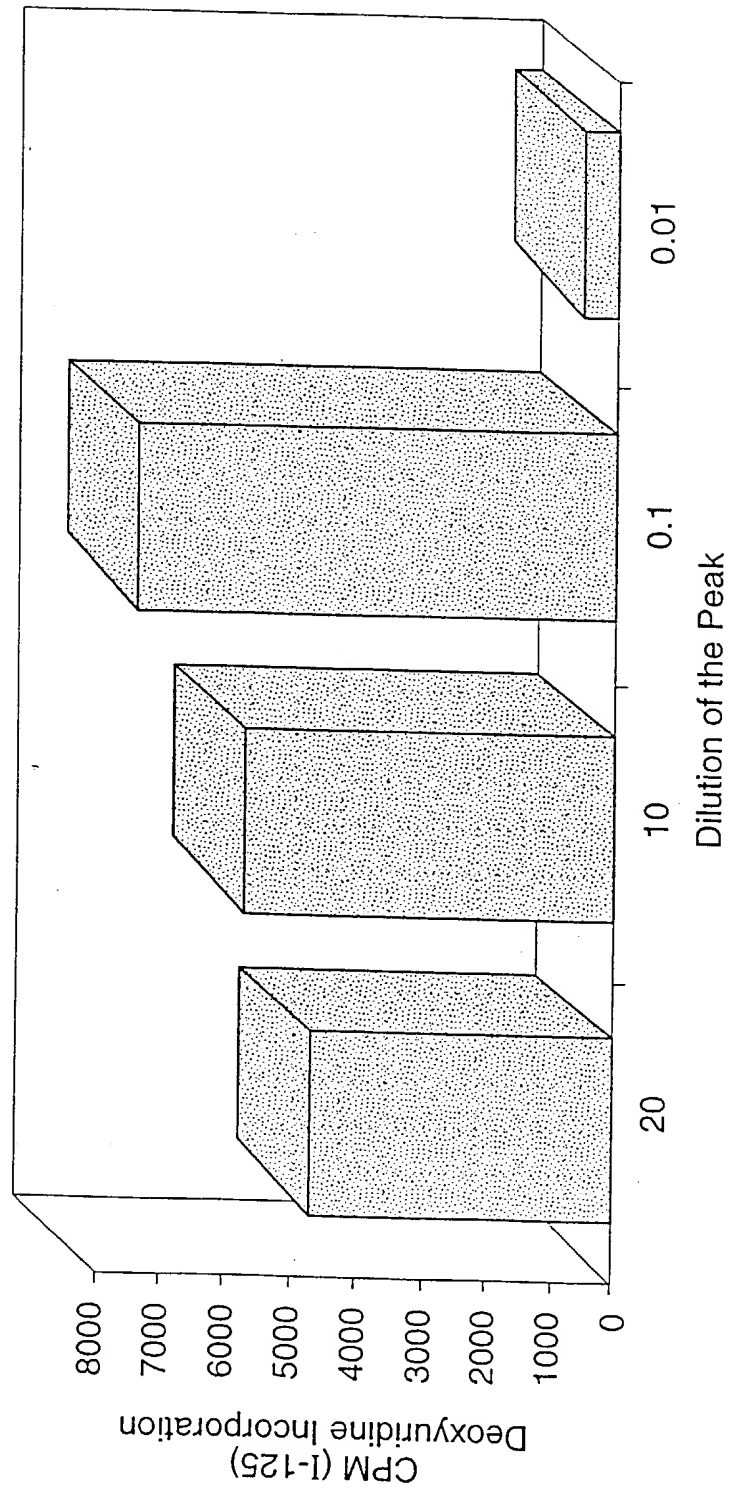


FIG. 50B

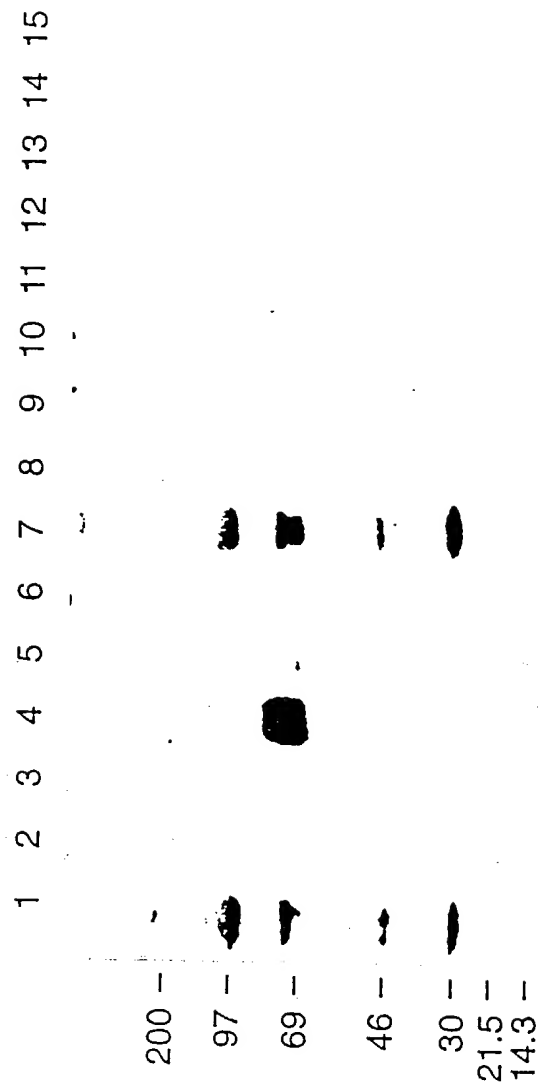
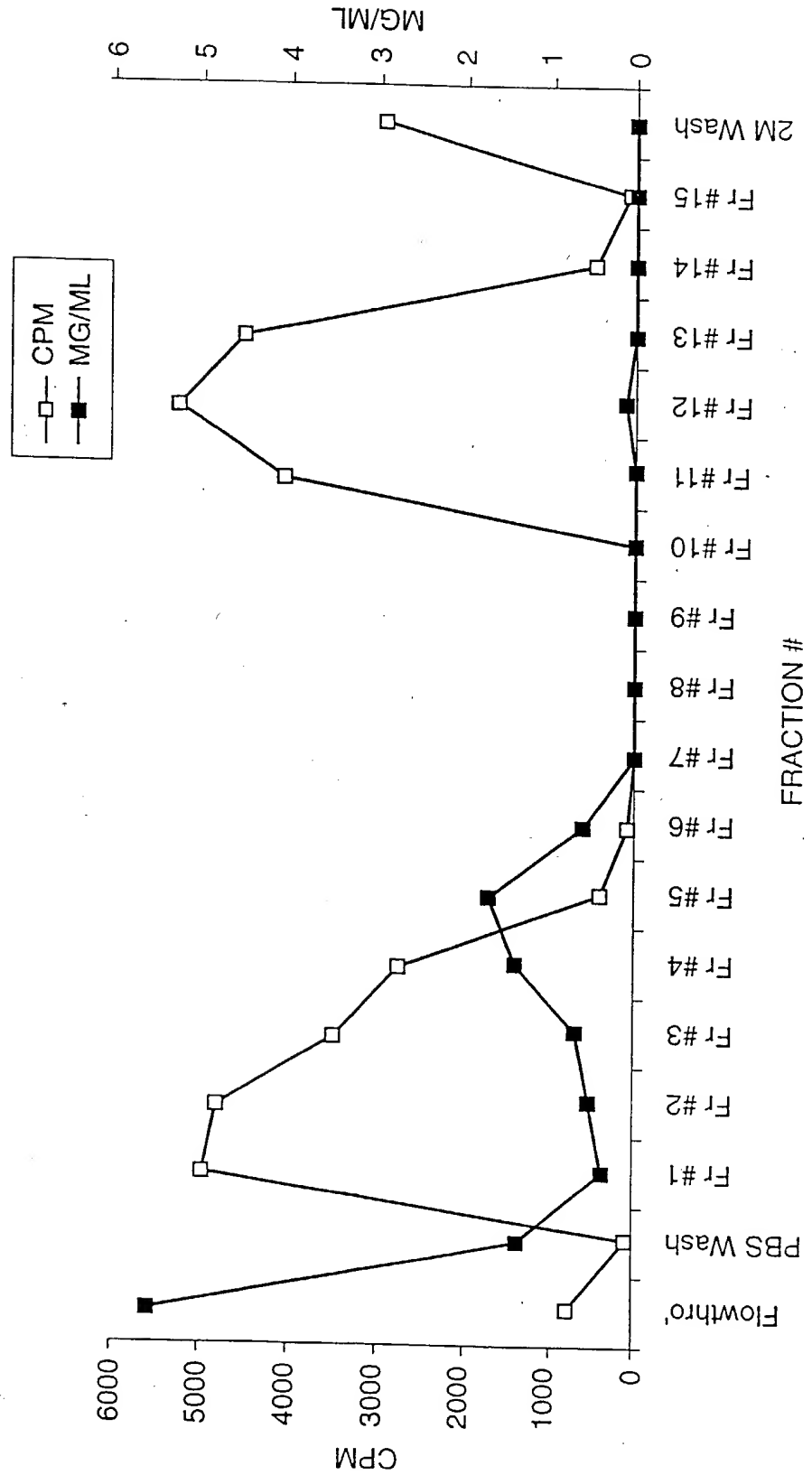


FIG. 51 A
rGGF Purification on Cation Exchange Column



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FIG. 518

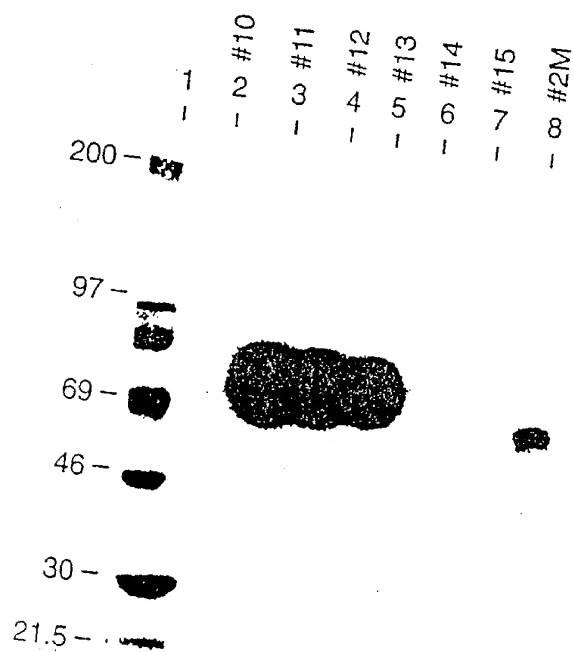
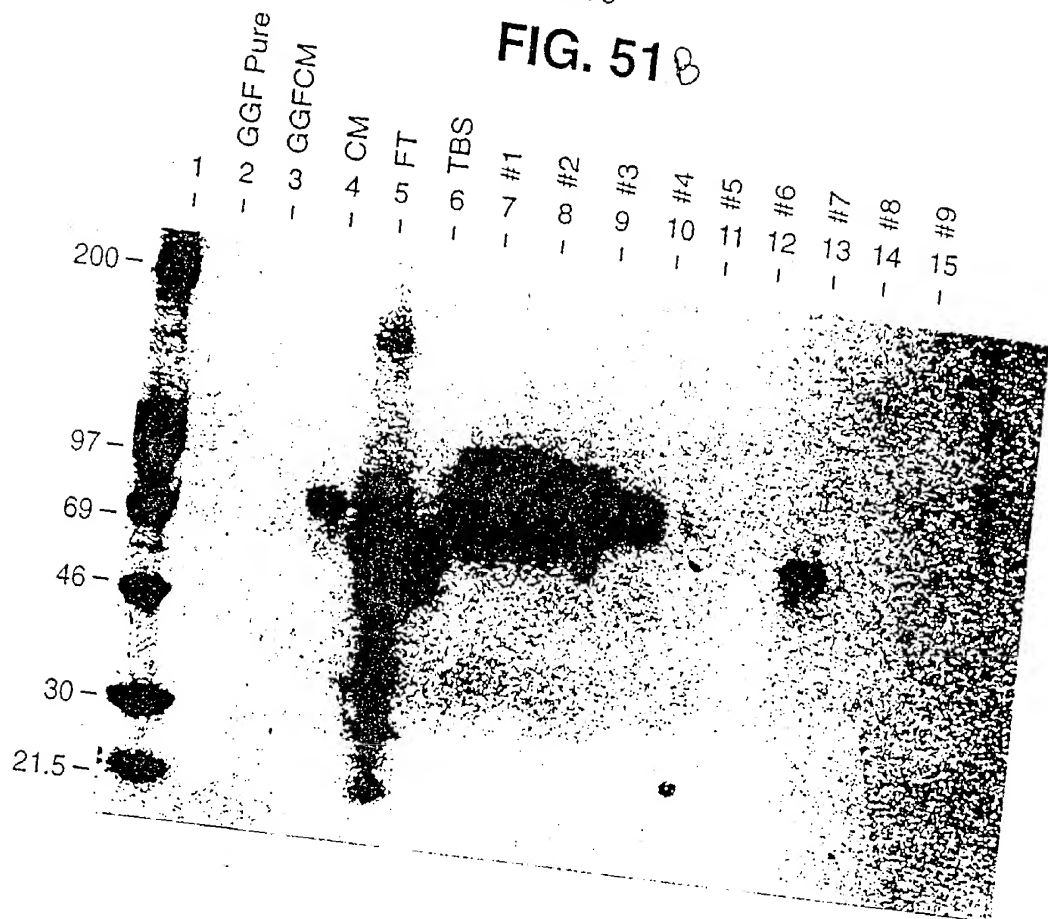
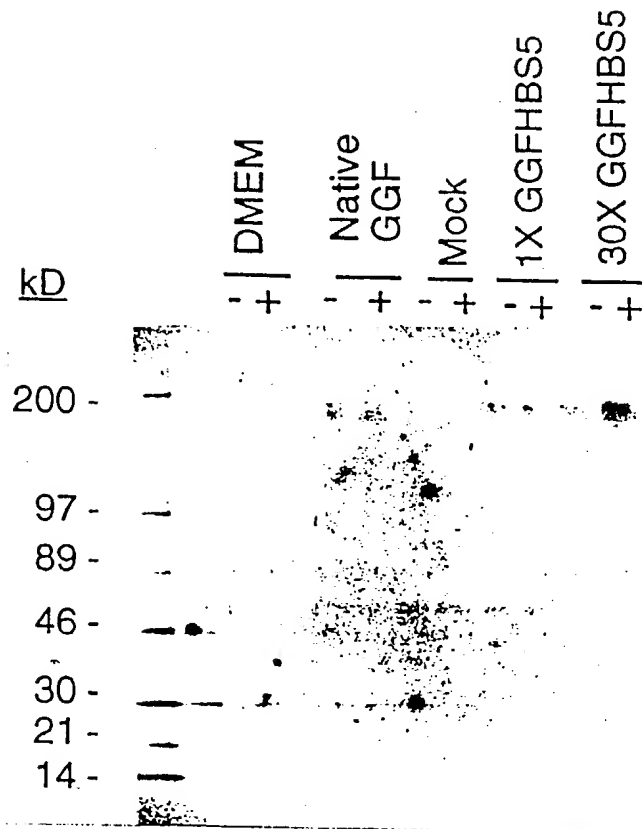


FIG. 52

SEQ ID NO:170	GGFHBS5	1	1	MRMRAPRRSGRPGPRAQPGSAARSSPPLPLPLPLLLGLTAALAPGAAAGNEAAPAGAS
				II-8 II-4
61				VCYSSPPSVGSVQELAQRAAVVIEGKVHPQRQGGALDRKAAAAAGEAGAWGGDREPPAA
				O
121				GPRALGPPAEELLAANGTVPSWPTAPVPSAGEPGEAPYLVKVHQVWAVKAGGLKKDSL
				II-3 II-2 II-1 II-10
181				LTVRLGTWGHPAFPSCGRLKEDSRYIFFMEPDANSTSRAPAAFRASFPPLGTGRNLKKEV
				O
				2 3
GGFHBS5				SRVLCRKRC
SEQ ID NO: 171	GGFHFB1	241	1	O OMSEKRGKGKGGKKKRGSGKKPESAAGSQSP R
SEQ ID NO: 172	GGFBPP5	1	1	R K G D VP GP R V
				II-6 II-18 II-14 II-11 I-7, II-12, III-13
268				LVLRCETSSYSSLRFKNFKNGNELNRKNKPQNIQKKPGKSELRINKASLADSGEYMC
53				*
53				*
				4 K S S R S
				II-12 5
328				KVISKLGNDSASANITIVESN
113				ATSTS
113				EIITGMPASTEAGAYVSSSESPIRISVSTEGANTSSS
				T T
				6 II-15 8
354				TTGTSHLVKCAEKEKTFVCVNGGECFMVKDLNPSRYLCKCPNEFTGDRQCQNYVMASFYST
173				*
173				*
				A
				9
413				STPFSLSLPE*
232				
232				

FIG. 53
Deduced Sequences
of Human & Bovine
Glial Growth Factors

FIG. 54